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Sandia National Laboratories, California Environmental Management System Program Manual

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Sandia National Laboratories, California Environmental Management System Program Manual

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Abstract

The Sandia National Laboratories, California (SNL/CA) Environmental Management System (EMS) Program Manual documents the elements of the site EMS Program. The SNL/CA EMS Program was developed in accordance with Department of Energy (DOE) Order 450.1 and incorporates the elements of the International Standard on Environmental Management Systems, ISO 14001.

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Acronyms and Abbreviations

BAAQMD	Bay Area Air Quality Management District
CARB	California Air Resources Board
CBR System	Corporate Business Rules System
CCR	California Code of Regulations
CEDT System	Corporate Education, Development, and Training System
CPR	corporate process requirement
CPS	corporate policy statement
CPSR	corporate policy statement requirement
DOE	Department of Energy
EMS	Environmental Management System
ES&H	environment, safety, and health
IDT	Interdisciplinary Team
IES SMU	Integrated Enabling Services Strategic Management Unit
ISMS	Integrated Safety Management System
ISO	International Organization for Standardization
M&O Contract	management and operating contract
MSDS	material data safety sheet
NEPA	National Environmental Policy Act
NNSA	National Nuclear Security Administration
Organization 12870	ES&H, Quality, and Safeguards & Security Assessments Department
PHS	preliminary hazard screening
RCRA	Resource Conservation and Recovery Act
SHEAC	Safety, Health & Environment Advisory Committee
SME	subject matter expert
SMU	strategic management unit
SNL	Sandia National Laboratories
SNL/CA	Sandia National Laboratories, California

1 Program Introduction

1.1 Corporate EMS Overview

On January 15, 2003, the Department of Energy (DOE) issued *DOE Order 450.1, Environmental Protection Program.* Order 450.1 outlines the basic strategy for environmental compliance at DOE facilities. It became effective for all Sandia National Laboratories (SNL) facilities on August 21, 2003 through incorporation into the Sandia management and operating contract. The objectives of Order 450.1 are to implement sound environmental stewardship practices, and to meet or exceed compliance with environmental, public health, and resource protection laws, regulations, and DOE requirements (DOE 2005). The order requires DOE sites to meet these objectives through an environmental management system (EMS).

An EMS is a set of inter-related elements that represent a continuing cycle of planning, implementing, evaluating, and improving processes and actions undertaken to achieve environmental policy and goals. At the corporate level, these basic elements are reflected in Sandia's environment, safety, and health (ES&H) policy (SNL 2005c). The strategy for managing and implementing the ES&H program is documented in the corporate integrated safety management system (ISMS) (SNL 2004b). The corporate EMS Program is included as part of ISMS. Sandia updates the ISMS/EMS description at least every two years to reflect changes and improvements in environment, safety, and health management at SNL facilities.

1.2 SNL/CA EMS Overview

Under the corporate EMS umbrella, each SNL Division implements an EMS program tailored to the characteristics and operations of that division. Sandia National Laboratories, California (SNL/CA), or Division 8000, prepared the *Sandia National Laboratories, California Environmental Management System Program Manual* (EMS Manual) to document its EMS Program. Annually, the SNL/CA EMS Core Team updates the EMS Manual to document the aspects/impacts of current operations, the goals and objectives that respond to these impacts and the EMS changes and improvements that occurred during the year.

The SNL/CA EMS Program satisfies the requirements of DOE Order 450.1 within the framework of the international standard for EMS, ISO 14001 (ISO 2004). DOE Order 450.1 contains ten broad requirements that overlap with the 17 required elements of ISO 14001. Table 1 provides a cross reference of the program elements and references the appropriate DOE and ISO requirement.

Table 1 Cross-reference of SNL/CA EMS Elements

EMS Element	DOE Order 450.1	ISO 14001	Section / Page
Site environmental policy		X	2 / 12
Environmental aspects	X	X	3 / 13
Legal and other requirements		X	4 / 15
Objectives and targets	X	X	5 / 17
Environmental programs	X	Included in objective and target requirement[a]	6 / 20
Structure and responsibilities		X	7 / 23
Training, awareness, and competence		X	8 / 26
Communications		X	9 / 29
EMS Documentation	X	X	10 / 31
Document control	Separate DOE order	X	11 /32
Operational controls / procedures	X	X	12 / 33
Emergency preparedness and response	Separate DOE order	X	13 / 35
EMS monitoring and measurement	X	X	14 / 36
Evaluation of compliance with environmental requirements	X	X	15 / 39
Nonconformity, corrective, and preventive action	X	X	15.3 / 39, 15.4 / 40
Records	Separate DOE order	X	16 / 42
Internal EMS program audit / system maintenance	X	X	14 / 37
Management review	X	X	17 / 43

[a] The ISO 14001 standard combines environmental programs with objectives and targets as one element; however, environmental programs are addressed separately in this manual.

By design, the SNL/CA EMS Program is dynamic. The program encompasses an annual cycle of planning, implementing, assessing, and improving operations in support of site-specific environmental goals. The EMS Program cycle is presented in Figure 1. As shown, the EMS cycle aligns with the budget cycle so that investment and resource requirements can be requested for the next budget year. To provide further detail of the timing of EMS actions throughout the year, an annual calendar was prepared and is included as Figure 2.

1.3 Quality Assurance

The Sandia Corporate Quality Assurance Program, defined in CPR001.3.2 (SNL 2003b) is implemented in California through the SNL/CA Quality Program (SNL/CA 2003). An ES&H quality assurance document (Appendix D, SNL/CA 2005b) further supports the quality process by providing requirements for data management, document control, training, and self-assessments. An updated quality assurance document will be prepared in the next fiscal year in response to an audit finding identified in September 2005. Annually, SNL/CA ES&H departments will review the quality assurance document and update it at least every three years.

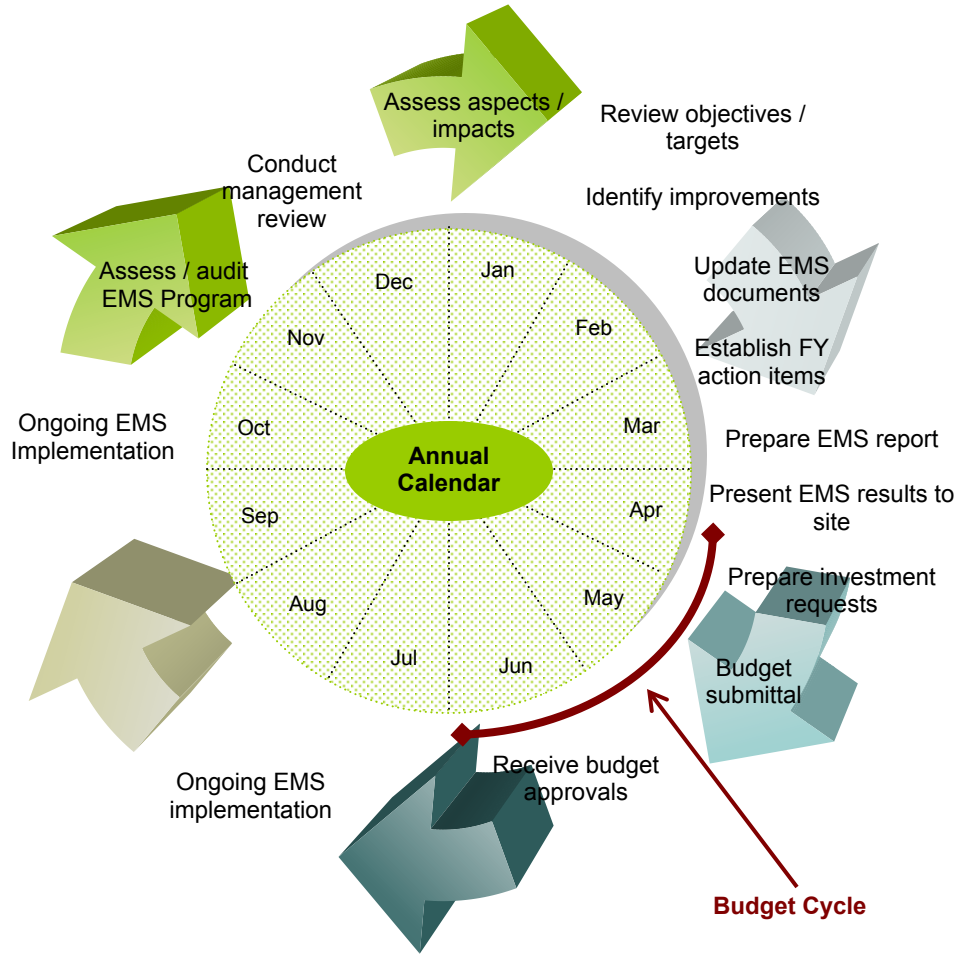

Figure 1 EMS Program Cycle

	Annual EMS Calendar of Major Events	Start Date	Finish Date	2006
				Jan Feb Mar Apr May Jun Jul Aug Sept Oct Nov Dec
1	End of Year Status (Prior Year Actions/Targets/Measures)	1/2/06	1/13/06	
2	Annual Risk Assesment and A/I Update	1/9/06	1/20/06	
3	Annual SHEAC EMS Presentation	1/16/06	2/15/06	
4	Update Individual Program Plans (backward looking with ideas of future goals/objectives)	1/16/06	1/30/06	
5	Dept. Mgr. Approval of Annual Program Reports	1/30/06	2/10/06	
6	Establish / Modify Objectives and Targets for next year	1/23/06	2/10/06	
7	Annual Sr. Management (BLT) EMS Presentation and annual objectives/targets approval	3/31/06		
8	Update EMS Program Manual - (50% backward summary, 50% forward planning)	2/10/06	3/10/06	
9	EMS Program Manual Review / Dept. Mgr. Approval	3/10/06	3/17/06	
10	EMS Program Manual Management Approval (8500 Director)	3/31/06		
11	Publish Annual EMS Manual	4/14/06		
12	Annual Site Environmental Presentation	7/28/06		
13	Establish / Modify Year's Action Items for Achieving Objectives / Targets	2/24/06	3/10/06	
14	Work on Action Items	3/10/06	12/1/06	
15	Prepare / Submit IES Next Year Investment Funding Request	4/17/06	5/12/06	
16	IES Next Year Investments Approved	6/30/06		
17	Integrate EMS goals with site IES Objectives for following Yr	9/1/06	9/30/06	
18	IES Investment Funds Provided	10/2/06		
19	Work on investment actions	10/2/06	8/31/07	
				Jan Feb Mar Apr May Jun Jul Aug Sept Oct Nov Dec

Figure 2 Annual EMS Calendar, 2006

2 SNL/CA ES&H Standard of Performance

The SNL/CA Vice President issued a Division 8000 ES&H standard of performance statement on April 20, 2005. The statement reinforces individual accountability, environmental stewardship, and regulatory compliance - the basic elements of the corporate ES&H policy (SNL 2005c). The statement stresses the need to move beyond compliance requirements to nurture a positive ES&H culture at all levels of the workforce.

Annually, the SNL/CA EMS Core Team reviews the ES&H standard of performance statement to ensure that it remains aligned with the site vision and the corporate ES&H policy. This review is executed as part of the internal EMS program audit. If needed, the EMS team presents recommendations for revisions to site management during the management review process described in Section 17.

SNL/CA ES&H Standard of Performance

SNL/CA is firmly committed to meeting all corporate and regulatory ES&H policies and requirements that apply to its operations. The application of compliant ES&H principles and practices is considered a fundamental element of everyone's work assignment.

In this regard, SNL/CA commits to:

- **Nurture a safety and health conscious work ethic and culture.** We will all assume responsibility for creating and maintaining a worksite, as well as performing our work, in a manner that respects and supports the safety and health of every individual. SNL/CA believes that all accidents are preventable. We will all strive to create a workplace that is free of accidents and injuries.

- **Be a responsible steward of the environmental resources in our care.** We will integrate environmental risk assessment, planning and impact mitigation into every aspect of our work. SNL/CA programs, operations, processes, and facilities will be planned and managed such that they support environmental objectives and targets to minimize the creation of waste, pollution, and adverse impact on the public and the environment. SNL/CA will remain committed to an efficient and effective Environmental Management System as part of the laboratory's Integrated Safety Management System.

- **Comply with all applicable laws, regulations and permits.** Compliance with the letter and the spirit of ES&H laws and regulations is viewed as the minimum acceptable standard. When necessary and appropriate we will go beyond legal mandates in order to implement more effective approaches and to nurture a positive and learning ES&H culture. SNL/CA is committed to continuous improvement in all aspects of our environment, safety, and health performance and commits to establish performance indicators to guide these efforts and measure our progress.

3 Environmental Aspects

3.1 Corporate Aspects

Environmental aspects associated with Sandia activities were developed by a joint EMS working group that included participants from Sandia National Laboratories, New Mexico and SNL/CA. Various approaches were used to select aspects for the corporate EMS including collecting information on site operations, input from Sandia organizations, and brainstorming of issues, trends, and risks. The working group identified the following twenty environmental aspects for Sandia operations:

- Air emissions
- Asbestos waste
- Biological hazards
- Contaminated sites
- Hazardous waste
- Transportation of hazardous/radioactive material/waste
- Industrial (solid) waste
- Legacy polychlorinated biphenyls (PCBs)
- Radioactive material
- Radioactive and mixed waste
- Hazardous materials
- Reuse and recycling of resources
- Land use
- Waste water discharges
- Fire risk
- Natural gas consumption
- Electricity consumption
- Water consumption
- Noise and vibration
- Exposure to electromagnetic radiation, high energy, microwaves, lasers

3.2 SNL/CA Aspects

The SNL/CA EMS Core Team evaluated each of the twenty corporate environmental aspects with respect to California operations, and ranked them from most significant to least significant[1]. Significance was determined through a risk assessment that considered both the probability of an event occurrence and the magnitude of the environmental consequence of the event. Environmental consequences associated with each environmental aspect event correlate to pathways of potential damage. These pathways include:

- Contamination of ground and/or surface water
- Contamination of soils due to spills or leaks
- Contamination of air
- Exposure to the workforce
- Exposure to the public
- Disturbance to wildlife or habitat

[1] The term significant used in the EMS Manual does not imply an actual impact or effect as determined through National Environmental Policy Act (NEPA) impact analyses. Through the NEPA process, SNL/CA operations were analyzed in a site-wide environmental assessment, resulting in a Finding of No Significant Impact (DOE 2003a, DOE 2003b).

Numeric values corresponding to low, medium, and high probability and consequence were assigned to each aspect event using criteria developed by the site EMS team. Significant environmental aspects for SNL/CA and the corresponding numeric ranking are presented in Table 2.

Table 2 SNL/CA Significant Environmental Aspects

Aspect	Numeric Ranking	Aspect	Numeric Ranking
Fire risk	74	Transportation of hazardous / radioactive material/waste	40
Hazardous materials	69	Natural gas consumption	31
Air emissions	68	Exposure to electromagnetic radiation, high energy, microwaves, lasers	31
Hazardous waste	56	Asbestos waste	30
Wastewater discharges	53	Legacy PCBs	30
Land use and habitat	46	Noise and vibration	29
Electricity consumption	45	Reuse and recycling of resources and wastes	28
Radioactive and mixed waste	45	Industrial (solid) waste	28
Biological hazards	42	Contaminated sites	28
Radioactive material	41	Water consumption	28

The SNL/CA EMS Core Team decided to base its focus on the top five ranked aspects as shown in Table 2: fire risk, hazardous materials, air emissions, hazardous waste, and wastewater discharges. As improvements are achieved in these five areas, a reduction in significance ranking may result, allowing the site to change and expand its focus to lesser significant aspects. The level of significance of each environmental aspect is reviewed annually during the internal EMS Program audit. Modifications to the SNL/CA EMS are applied, as needed.

In addition to the top five high-risk environmental aspects, SNL/CA identified five aspects that represent highest areas of opportunity for environmental improvement. For 2005, these included land use and habitat, electricity consumption, natural gas consumption, industrial (solid) waste, and water consumption. Opportunity aspects are included in the SNL/CA EMS Program as a secondary focus.

4 Legal and Other Requirements

SNL/CA is subject to many federal, State of California, and local environmental laws, regulations, and requirements. Additionally, all Sandia operations are subject to DOE directives identified in Sandia Corporation's contract with DOE for management and operation of Sandia National Laboratories. The process for monitoring ES&H requirements is identified in CPR 400.1.2.2 (SNL 1998). At the corporate level, Sandia monitors DOE directives, DOE Acquisition Regulation activity, Federal Register, and federal, state, and local government publications for regulatory changes and issues applicable to SNL operations. New requirements are communicated to the workforce through established internal mechanisms and incorporated into the Sandia ES&H Manual, a comprehensive document that guides the workforce through the compliance process (SNL 2005d). New requirements are then incorporated into facility- and operation-specific work planning and control documents.

Environmental subject matter experts (SMEs) at SNL/CA also monitor state and local issues through subscription to electronic and paper publications and through direct contact with regulators. SNL/CA SMEs work directly with regulating agencies to obtain information on new and changing requirements well in advance of requirements becoming effective. Such advance notice allows the SNL/CA EMS Core Team to identify resources and implement effective and cost efficient processes for compliance.

Environmental requirements applicable to site operations are detailed in annual program reports prepared for each environmental program area. (See Section 6.0 for more information on SNL/CA's environmental programs.) These annual reports are included in Appendix A. Table 3 summarizes information from the annual program reports pertaining to new and modified environmental requirements that were implemented since 2004 or are pending.

Table 3 New and Modified Environmental Requirements Since 2004.

Requirement Summary	Effective Date	Driver	Program Modification
California tiger salamander listed as threatened species and given protection under Federal law	July 26, 2004	Endangered Species Act	SNL/CA expected this change for several years; consequently, SNL/CA included this species in the site Biological Assessment that was prepared in 2002. No additional program modifications are required at this time.
US Fish and Wildlife Service issued a biological opinion for site operations that establishes requirements for monitoring, reporting, and protecting threatened species and critical habitat	December 8, 2004	Endangered Species Act	Established protocol surveys for threatened species and implemented a training program on species identification, reporting, and protecting for maintenance personnel.
DOE sites required to develop a cultural resources management plan	September 22, 2004	DOE G 450.1-3 DOE P 141.1	Cultural resources management plan is under development
Amend Spill Prevention Control and Countermeasure Plan to meet new regulations.	Amend by February 17, 2006; implement by August 18, 2006	40 CFR 112	Implemented process for testing tank integrity every five years
Amend Storm Water Pollution Prevention Plan to meet new regulations	Amend by December 2004	Clean Water Act, State General Permit Phase II	Modified plan in anticipation of designation as a regulated entity. Established storm drain maintenance program and post-construction runoff controls.
State Water Resources Control Board issued underground storage tank "Training Plus" regulations, Implementing regulations found in Title 23 California Code of Regulations (CCR)	May 8, 2004	Clean Water Act	A member of the SNL/CA Facilities Operations team participated in training and received certification as a designated operator as defined under this regulation.
Modified Environmental Protection Program requirements issued by DOE under Order 450.1; supersedes DOE Order 5400.1; affects all environmental program areas	August 2004	DOE O 450.1	Implement Environmental Management System
Additional requirement from state of California for tire disposal and recycling.	July 2005	California Tire Waste Manifest System	Participated in training workshop to gain better understanding of requirement.
Additional requirement to manage waste from electronics devices (cathode ray tubes, desktop monitors, laptop computers, televisions)	January 1, 2003	Electronic Waste Recycling Act	Established memorandum of understanding with LLNL to manage excess electronics
Requirement for cleaner diesel fuel: lower sulfur levels to less than 15 parts per million	June 2006	CARB Diesel Risk Reduction Plan	Developing plan with Maintenance Engineering Department to ensure that future deliveries of diesel fuel meet lower sulfur limits.
Requirement to retrofit the SNL/CA Waste Collection Vehicle	2007	CARB Diesel Risk Reduction Plan	Registered Waste Collection Vehicle with CARB; submitted annual report to CARB identifying waste collection contractors.
Airborne Toxic Control Measure for Stationary Compression Ignition Engines	January 1, 2006	CARB Diesel Risk Reduction Plan	Submitted compliance checklist for stationary diesel engines to Bay Area Air Quality Management District (BAAQMD).

5 Objectives and Targets

Objectives and targets provide a measure of environmental performance and the effectiveness of an EMS. SNL/CA's objectives support efforts to reduce potential environmental risk from site operations and enhance environmental stewardship. Our targets are detailed measurable performance requirements directly linked to site objectives.

5.1 Defining Objectives

The SNL/CA EMS Core Team grouped all site activities into ten general categories: general environmental operations; office operations; medical operations; laboratory and test activities; facilities construction and deconstruction; exterior maintenance and operations; building maintenance and operations; security operations; onsite receiving and transportation (materials and people); and offsite transportation (people). Each of these were evaluated against the five highest ranked environmental aspects and the five opportunity aspects as defined in Section 3. The EMS team then established objectives tailored to the categories of activities conducted onsite. Progress towards meeting environmental objectives is assessed annually during individual environmental program self-assessments, and modifications are made, as needed. SNL/CA objectives are presented in Table 4.

Table 4 SNL/CA EMS Objectives

Environmental Aspect	Objective
Compliance	Meet or exceed all applicable environmental requirements.
Top 5 Risk Aspects	
Fire risk	Minimize risk of fire.
Hazardous materials	Reduce quantities and toxicity of hazardous materials onsite.
Air emissions	Reduce air emissions related to operations and transportation, with emphasis on Spare The Air days.
Hazardous waste	Reduce quantities of hazardous waste generated onsite.
Wastewater discharges	Reduce quantity of sewer water generated onsite and improve quality.
	Reduce volume and velocity of storm water runoff.
	Minimize pollutants in storm water runoff.
Top 5 Opportunity Aspects	
Land use and habitat	Enhance the natural habitat.
	Incorporate exterior building features into new construction to discourage pigeon roosting and nesting.
	Use "green" design principles for design and construction of all buildings.
Electrical consumption	Decrease electrical consumption per building (sq ft).
Natural gas consumption	Decrease natural gas consumption per building (sq ft).
Industrial (solid) waste	Reduce quantity of solid waste transported to landfill through reduced consumption and/or recycling.
Water consumption	Decrease water consumption per building (sq ft).

5.2 Defining Targets

The SNL/CA EMS Core Team established measurable targets for each EMS objective. For maximum benefit, targets connect to one or more of the ten general categories of activities conducted at SNL/CA. The complete list of targets is included in Appendix B. Table 5

provides a sample of the targets selected for SNL/CA activities and environmental aspects. Action items that support achievement of targets and objectives are also shown. At the end of each calendar year, the EMS team reviews and updates targets as needed. Action items for the upcoming year(s) are also defined. Figure 3 shows this continuous cycle of setting objectives and targets.

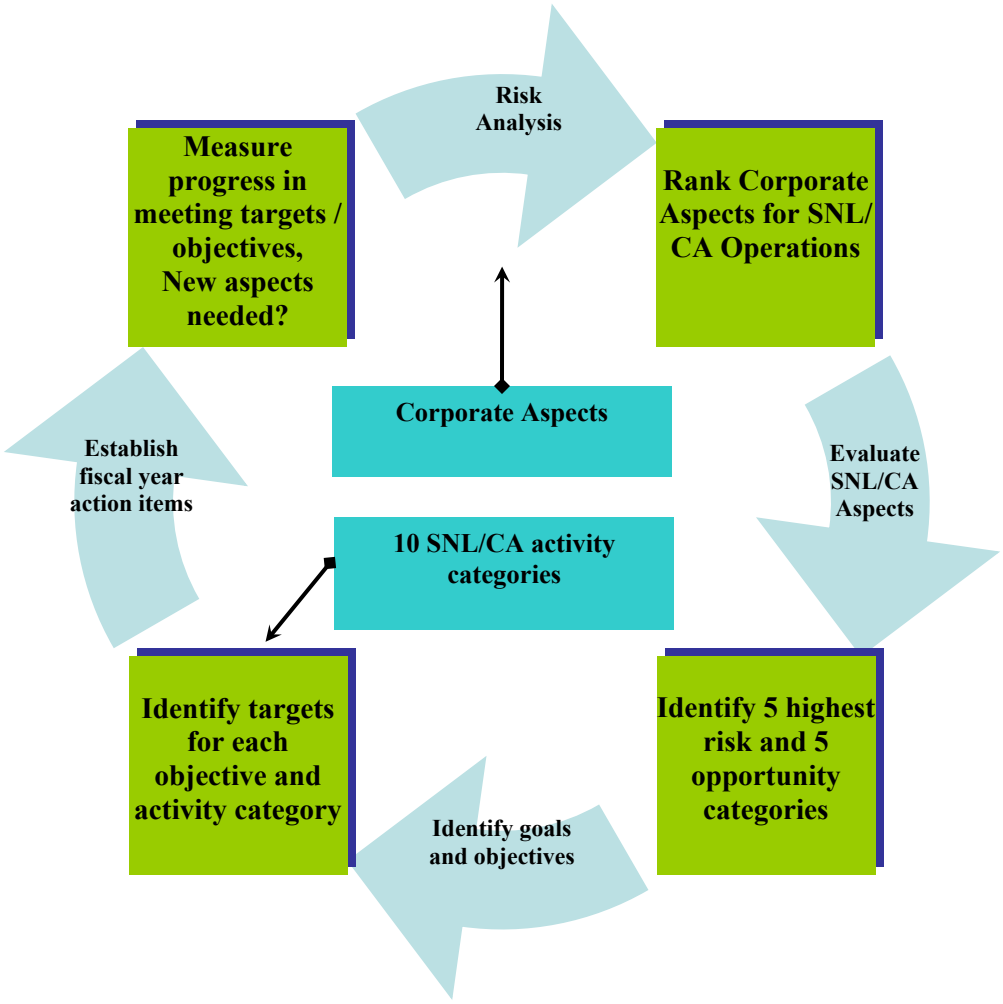

Figure 3 Cycle of Setting and Evaluating EMS Objectives and Targets

Table 5 Sample of EMS Targets

Environmental Aspect	Site Activity	Objective	Target	Current Year Action
Compliance	General environmental operations	Meet or exceed all applicable environmental requirements.	Receive no Notices of Violation from any external regulatory agency audit.	Incorporate annual self-assessment corrective actions into environmental programs.
Fire risk	Laboratory and test operations	Minimize risk of fire.	By the end of FY 2008, a gas detection system will be connected to both the building fire alarm system and the laboratory safety system for each lab where the flammable gas quantities exceed the exempt quantities.	Survey all site laboratories and identify those that meet the criteria and do not have gas detection systems. Report these to Facilities Planning and Engineering for funding scheduling.
Hazardous materials	All operations	Reduce quantities and toxicity of hazardous materials.	By the end of fiscal year (FY) 2005, reduce site hazardous material container inventory count by 10% from the September 1, 2004 baseline of 38,807 containers.	Report hazardous material inventory > 10 years old to all organizations and encourage inventory reduction.
Air emissions	Onsite transportation	Reduce air emissions related to operations and transportation, with emphasis on Spare The Air days.	By the end of FY 2008, reduce sitewide mobile source emissions by 10% from FY 2005 baseline	Establish a baseline of emissions.
Hazardous waste	Security operations	Reduce quantity of hazardous waste generated.	By the end of FY 2007, reduce the site's routine hazardous waste quantity by 10% per capita.	Develop a process to modify hand washing in security operations (gun range).
Water discharges (sewer and stormwater)	Facilities construction and deconstruction	Reduce sewer water quantity and improve quality.	100% of new construction will have post-construction runoff equal to or less than pre-construction runoff.	Create a set of Best Management Practices for future projects and provide to facilities so they can be incorporated into designs.
Land use and habitat	Exterior maintenance and operations	Enhance the natural habitat.	By the end of FY 2009, remove 25% of the thistles in the outer perimeter area and reseed areas with native grasses.	Prepare an estimate of acres containing thistle in the outer perimeter area.
Electrical consumption	All operations	Decrease electrical consumption per building (sq ft).	Decrease building use to 26 kilo-watt hours per gross sq ft on an annual basis by the end of FY 2010.	Repair electrical metering system to capture building usage of B915 and B916.
Natural gas consumption	Laboratory and test operations	Decrease natural gas consumption per building (sq ft).	Decrease metered process natural gas use in laboratory buildings 25% by 2010 from a 1990 sq ft baseline per DOE Order 430.2a.	Calculate 1990 baseline from old consumption data.
Industrial (solid) waste	Facilities construction and deconstruction	Reduce quantity of waste to landfill through reduced consumption and/or recycling.	By the end of FY 2008, recycle 90% of concrete and asphalt debris.	Evaluate the cost of purchasing a concrete and asphalt crusher.
Water consumption	Office operations	Decrease water consumption per building (sq ft).	To be determined after completion of FY 2005 action.	Identify percent of sinks and toilets that are not low flow.

6 Environmental Programs

SNL/CA maintains an Environmental Management Department that manages six functional program areas supporting the site EMS Program. The program leads from each of these six programs comprise the core team responsible for developing, implementing, and modifying the site EMS. Functional program areas are:

- Air Quality
- Environmental Monitoring and Restoration
- Environmental Planning and Ecology
- Hazardous Materials Management
- Pollution Prevention and Waste Minimization
- Waste Management

The program lead for each functional area prepares an annual report that provides detailed information about all aspects of program operations. The program reports are provided in Appendix A and include the following:

- A detailed summary of program activities
- Compliance drivers
- Operational controls
- Documents produced
- Job descriptions, qualifications, and training
- Performance measures
- Quality assurance
- Program assessments
- Accomplishments in the last 12 months
- Trends
- Goals and objectives (short-term)

6.1 Air Quality

The Air Quality Program provides compliance assistance for all nonradiological air emission sources at SNL/CA. Program staff review all directives, laws, and regulations relevant to air emissions for applicability to the site. This program manages the air permit process, from the initial steps of preparing permit applications through implementation of permit conditions and annual renewals. The Air Quality Program is responsible for evaluating proposed projects, assessing chemical use, and assessing emissions of all criteria pollutants and toxic air contaminants.

The Air Quality Program assists the site in complying with the Clean Air Act, California Air Resources Board (CARB) regulations, and local Bay Area Air Quality Management District (BAAQMD) regulations.

6.2 Environmental Monitoring and Restoration

The Environmental Monitoring and Restoration Program routinely monitors wastewater, storm water, and groundwater systems at SNL/CA to assess the effect of site operations on the public and local environment. Storm water is evaluated for general water quality, and for nonradiological and radiological constituents. Wastewater effluent resulting from site operations is monitored for nonradiological constituents. Liquid effluent control systems are operated and maintained by the program to capture wastewater from laboratory activities for analysis prior to release to the sanitary sewer. Groundwater is sampled and analyzed for nonradiological and radiological constituents to assess the extent of groundwater contamination from past operations. In addition, monitoring of external radiation at the site perimeter is conducted using thermoluminescent dosimeters. Comparisons are made of site data to offsite dose rates. The program also conducts project specific soil sampling to assess potential soil contamination from past or current operations and implements restoration activities, as needed.

The Environmental Monitoring and Restoration Program assists the site in complying with federal requirements (Clean Water Act, National Emission Standards for Hazardous Air Pollutants Rule for Radionuclides); state of California requirements (Porter-Cologne Water Quality Act); and state and local permits for storm water and wastewater discharges.

6.3 Environmental Planning and Ecology

The Environmental Planning and Ecology Program provides oversight for ecological resource management, site-wide National Environmental Policy Act (NEPA) review, and cultural and historic resource reviews. The program coordinates and oversees wildlife, vegetation, and historic building surveys; prepares routine environmental reports that cross over multiple program areas; and implements the SNL/CA NEPA process.

The Environmental Planning and Ecology Program assists the site in complying with the Endangered Species Act; Migratory Bird Treaty Act; California Endangered Species Act; National Historic Preservation Act; NEPA; DOE NEPA Implementing Procedures; DOE Order 231.1 Environment, Safety, and Health Reporting; and Executive Order 11990 Protection of Wetlands.

6.4 Hazardous Materials Management

The Hazardous Materials Management Program is responsible for tracking hazardous materials (chemical and biological), managing the Material Safety Data Sheets (MSDS) library, providing MSDS information to site personnel, and for regulatory compliance reporting required under various hazardous materials regulations. The program is also responsible for supporting hazardous material safety and information requirements site-wide.

The Hazardous Materials Management Program assists the site in complying with the Emergency Planning and Community Right-to-Know Act and California Right-to-Know

regulation. The Hazard Communication/Lab Standard of the Occupational Safety and Health Administration is also key to program operations.

6.5 Pollution Prevention and Waste Minimization

The Pollution Prevention and Waste Minimization Program promotes the elimination or reduction of all types of wastes generated at SNL/CA. Program staff work closely with Facilities organizations to establish routine and project specific recycling programs. The program provides guidance for resource and energy conservation and assists in identifying recycled-content products for use throughout the site.

The Pollution Prevention and Waste Minimization Program assists the site in complying with the Pollution Prevention Act; Resource Conservation and Recovery Act (RCRA), California Hazardous Waste Source Reduction and Management Review Act; Energy Policy Act of 2005; and numerous executive and DOE orders. A complete list of orders is provided in the Pollution Prevention and Waste Minimization Program Annual Report (Appendix A).

6.6 Waste Management

The Waste Management Program manages hazardous, radioactive, and mixed wastes generated by SNL/CA operations. Program personnel collect waste from the point of generation and transfer it to either the Hazardous Waste Storage Facility or the Radioactive Waste Storage Facility for storage, consolidation, and packaging. The program establishes and maintains contracts for offsite treatment and disposal of wastes, manages the RCRA permit process and implements conditions of the permit, conducts process knowledge evaluations to characterize waste types generated from specific operations, and provides training to all SNL/CA waste generators.

The Waste Management Program assists the site in complying with Federal requirements (RCRA, Toxic Substances Control Act, Federal Facilities Compliance Act, Federal Insecticide, Fungicide, and Rodenticide Act); State of California requirements (Hazardous Waste Control Law, Medical Waste Management Act); DOE orders for radioactive waste management and packaging and transportation of waste; and the RCRA Part B Permit for SNL/CA.

7 Structure and Responsibilities

7.1 Management Structure

Sandia Corporation operates SNL for the DOE National Nuclear Security Administration (NNSA) under a management and operating contract (M&O contract). SNL's management structure is divided into six mission strategic management units (SMU) that support a variety of research and development programs. One additional SMU, the Integrated Enabling Services Strategic Management Unit (IES SMU), exists to enable these six to achieve their goals. The IES SMU provides a system of integrated services (i.e., facilities, security, human resources) that are necessary for the operation of SNL/CA. ES&H is one of the IES SMU functions.

At SNL/CA, all IES SMU functions are contained within the Site Operations Center (8500). The SNL/CA Environmental Management Department is part of the Site Operations Center and leads the site EMS Program. The Environmental Management Department supports the IES SMU by providing SNL/CA research and support organizations with guidance and assistance relating to all elements of the EMS Program.

7.2 Corporate Business Rules

Sandia maintains a Corporate Business Rules System (CBR System) (SNL 2004a) that is structured and administered to help achieve balanced governance of SNL under the M&O contract. The CBR System is part of Sandia's Integrated Laboratory Management System, and managed by the Corporate Contracts & Policy Department. Corporate business rules are reviewed at least every two years or on a more frequent basis as deemed appropriate by the sponsor.

The structure of the CBR System is comprised of a hierarchy of requirements documents summarized in Table 6. As shown, this hierarchy flows from high level (M&O contract) to specific requirements addressed in local requirements documents. A complete list of corporate business rules is available online at http://www-irn.sandia.gov/policy/brnumbrs.htm.

7.3 Supporting Processes

SNL/CA has two key processes that were developed independent of the EMS program but support EMS elements, a preliminary hazard screening (PHS) process and the Interdisciplinary Team (IDT) process. Both processes are components of the ISMS program. The PHS process is applicable to all Sandia operations and facilities. The IDT process is SNL/CA specific. Both processes support evaluations of compliance with environmental requirements. Section 15 provides additional information about the PHS and IDT processes.

Table 6 CBR System Documents

Level	General Requirements Document	Primary Requirements Document in the SNL/CA EMS Program Hierarchy
0	M&O Contract – Prime contract between Sandia Corporation and DOE/NNSA	M&O Contract (only one contract)
1	Corporate Policy Statement (CPS) – An official statement of Sandia's fundamental values, communicates the philosophies of the Laboratories, and establishes the boundaries of operations (SNL 2005a)	CPS001 (only one CPS)
2	Corporate Policy Statement Requirements (CPSR) – Overarching policy requirements for each policy area	CPSR400.1 ES&H Policy Statement Requirement
2	Corporate Process Requirements (CPR) – Standardized requirements for corporate processes, used to implement Corporate Policy Statement Requirements	CPR400.1.2 ISMS Description CPR400.1.1 ES&H Manual & Supplements
3	Local Requirements – developed for a specific business unit, functional organization, or site	SNL/CA ES&H Standard of Performance

7.4 Key Responsibilities

SNL/CA personnel with key responsibility for the EMS Program include the site Vice President, the Director of Site Operations, the Level II Manager for ES&H, Facilities, and Security, the Manager for the Environmental Management Department, and the environmental functional program leads. The site Vice President holds overall responsibility for the success of the SNL/CA EMS Program and establishes the ES&H standard of performance for all site operations. The Director, Level II Manager, and Department Manager are responsible for providing the appropriate resources to implement and maintain the EMS, functional programs, and site infrastructure to support EMS objectives and targets. The Department Manager also serves as the designated management representative for the EMS. The functional program leads are responsible for day-to-day management of EMS elements and for assisting the site workforce in meeting established objectives and targets. SNL/CA personnel assigned to each job function are listed in Table 7.

Table 7 SNL/CA EMS Key Personnel, 2005

Job Function or Title	Name
Vice President, SNL/CA	M. John
Director, Site Operations	P. Smith
Level II Manager, ES&H, Facilities, and Security	E. Cull
Department Manager, Environmental Management	G. Shamber
Designated Management Representative	G. Shamber
Functional Program Leads:	
Air Quality	L. Gardizi
Environmental Monitoring and Restoration	R. Holland
Environmental Planning and Ecology	B. Larsen
Hazardous Materials Management	M. Brynildson
Pollution Prevention and Waste Minimization	L. Farren / J. Harris
Waste Management	M. Brynildson

8 Training, Awareness, and Competence

Operations at SNL/CA fall within two categories, Sandia-directed and contractor-directed. The mechanisms used to ensure that the workforce is trained, aware, and competent differ depending on the category of operation. To foster general site awareness of EMS and ES&H issues, SNL/CA routinely disseminates information through brochures, fact sheets, newsletter articles, the ES&H website, electronic announcements, project reviews, and line assessments. Chapter 9 provides additional information on EMS communications.

8.1 Sandia-directed Operations

Sandia-directed operations are subject to the requirements of Sandia's ES&H Manual. These requirements apply to Sandia employees (full and part-time staff, student interns, post-doctoral appointees), contractors performing under Sandia-directed contracts, and visitors (conference and meeting attendees, visiting researchers, industry partners). Chapter 11 of the ES&H Manual summarizes training for Sandia-directed operations. All Sandia workers and visitors are accountable and responsible for meeting applicable ES&H requirements, including those related to training.

SNL/CA provides EMS training to the site work force through the following.

- New-hire orientation is a one time basic orientation to ES&H for employees.
- ESH 100 is an annual training requirement for the entire site workforce.
- ENV 233 is an annual training requirement for generators of hazardous waste at SNL/CA.
- Presentations tailored to site organizations.

8.1.1 Employee Training, Awareness, and Competence

It is Sandia's policy to select the best qualified individuals on the basis of demonstrated competence and to provide opportunities for, and encourage, professional development (*CPR300.3.2, Staffing: Sourcing and Selection Manual*) (SNL 2005f). To support this policy, Sandia maintains a CPSR for continuing education, training, and development (*CPSR300.7*) (SNL 2005b) and a set of general corporate training courses that cover a wide range of areas such as information and physical security, business ethics and diversity, ES&H, and general business processes. General corporate training requirements are identified at the time of hire by Sandia managers and training coordinators. Job-specific training and competencies are identified through the PHS process, by ES&H coordinators, and by project and department managers.

Sandia maintains an online Corporate Education, Development, and Training System (CEDT System) at https://hrprod.sandia.gov/cfdocs/prod/hris/ctd/apps/cedtweb/cedtmain/index.cfm to track completion status for all corporate training requirements and to provide electronic reminders to an employee and their manager when a course is due. ES&H Coordinators also communicate past due training statistics with Center Directors on a routine basis.

SNL maintains a structured performance management system[2] to evaluate employee performance in meeting requirements and established goals (*CPR300.2.1*) (SNL 2004d). The performance of every Sandia employee is reviewed annually and performance management goals are established for the upcoming year. ES&H compliance is a mandatory performance requirement for all Sandia employees and included in individual performance goals. During the performance review process, managers communicate ES&H goals and requirements with their employees. Managers address non-conformances with ES&H requirements on an as needed basis in accordance with *CPR300.4.3 Disciplinary Action* (SNL 2005e).

8.1.1.1 Environmental Program Workforce

Each of the six SNL/CA functional environmental program areas (see Chapter 6) supporting the site's EMS Program maintain job descriptions, qualifications, and training requirements for each environmental program job position. Program leads review job descriptions, qualifications, and training requirements annually, update them as needed, and document the results of the review in annual program reports (Appendix A). The annual review and update provides an opportunity to modify training and competencies for existing environmental positions, or to identify new environmental positions, that are needed to support new or changing requirements.

8.1.2 Contractor Training, Awareness, and Competence

Contractors involved in Sandia-directed operations must meet basic competencies required to perform the assigned functions. Contracting companies also provide any general certifications needed for the assignment. Sandia managers or program leads review contractor qualifications prior to hire. Sandia augments contractor training for Sandia-specific requirements identified through the PHS system or by the manager directing work performed by a contractor. Sandia required courses are tracked in the CEDT System. Similar to Sandia employees, contracted workers and the appropriate manager are notified when courses become due.

Contracting companies are responsible for addressing ES&H performance issues communicated by Sandia for their employees.

8.1.3 Visitor Training, Awareness, and Competence

The level of training required for visitors is dependent on the length of stay and activity that they will perform. ES&H training for visitors at SNL/CA is addressed in Chapter 11 of the ES&H Manual. Sandia hosts and their managers determine the level of training required for visitors. At a minimum, visitors performing hands-on work in SNL/CA facilities receive ES&H awareness training. Laboratory- and equipment-specific training is also provided for visiting researchers performing hands-on work at SNL/CA user facilities.

[2] Applicable to SNL employees only. The performance of contract workers is evaluated through applicable contract mechanisms.

8.2 Contractor-directed Operations

Contractors performing under contractor-directed contracts are subject to standard specifications established by SNL/CA and included in the contract. Sandia identifies specialized training, credentials, or certifications required for contractors in the contract specifications. For contractor-directed operations, contractor companies must submit a health and safety plan for review by SNL/CA's Construction Safety Engineer. Work does not begin until the health and safety plan is approved by Sandia. The health and safety plan also addresses environmental issues, such as air quality, waste management, storm water pollution prevention, and cultural resources preservation.

SNL/CA requires contractors to provide a project safety officer when conducting work at Sandia, and to provide written documentation that the safety officer meets the qualifications defined in the contract specifications. Additionally, specifications require contractors to maintain appropriate contractor training records to be maintained on site and made available to Sandia oversight personnel upon request.

All construction projects or construction-like activities at SNL/CA are presented to the ES&H IDT for review. The IDT process functions both as an awareness and compliance mechanism. SNL/CA executes the IDT process to identify ES&H requirements and to disseminate EMS information. Requirements and other applicable information identified during the IDT review are provided to contractors through contract specifications and during the safety plan review process. A pre-construction conference is held to determine if the pre-work contract requirements have been met (e.g. approved safety plan, activity hazard assessment, construction site requirements, etc.).

Sandia provides oversight throughout the length of projects. Oversight personnel identify non-conformances through deficiency notices, non-compliance notices, and safety violation notices. All non-conformance notices are tracked by Sandia and used during evaluations for contract renewals.

9 Communications

SNL maintains an active communication system with established tools and processes to share information both internally and externally. As a result, SNL/CA has many options available to communicate EMS information to the site workforce and to external stakeholders. SNL/CA's Communication Plan Supplement (Appendix C) builds on the corporate EMS communication plan. The supplement identifies the communicators and their roles, outlines the site-specific communication tools used at SNL/CA, and provides a list of activities scheduled for 2005.

9.1 Internal Communications

The SNL/CA EMS Core Team communicates EMS information to the site workforce through the IDT process, publications, the internal web site, briefings, assessments, and promotional materials. The EMS Core Team receives input on environmental issues, including aspects and impacts, through the IDT process, the NEPA process, an ES&H telephone hotline, the self-assessment process, and the ES&H internal web site contacts list. SNL/CA also established an EMS Advisory Team to facilitate communication between the EMS Core Team and the various organizations on site. The Advisory Team is comprised of representatives from centers 8200, 8300, 8500, 8700, and the EMS Core Team. Advisory Team meetings are held quarterly to seek input from across the site as well as to report on the status of EMS implementation.

Table 8 provides a list of actions scheduled and completed in 2005 to promote internal communications.

9.2 External Communications

This EMS Program Manual documents SNL/CA's decision to communicate externally about the EMS program. Currently, EMS information is communicated externally through the annual site environmental report. A comment response card is distributed with the report to gather input from external stakeholders. Additional avenues of communication will be explored in future years and may include the addition of EMS information to SNL/CA's external web site, recruitment events, and media releases. Sandia's external communications are governed by *CPSR200.1 Communications* (SNL 2003a), and related corporate process requirements. All published information distributed externally must be reviewed and approved for public release in accordance with Sandia requirements.

SNL/CA employs a Public and Media Relations Officer to coordinate and assist with external communications. The Public and Media Relations Officer serves as the initial point-of-contact for external stakeholders to provide feedback to Sandia on all laboratory issues. The SNL/CA external web site provides an email address and telephone number for the public to communicate with the Public and Media Relations Office.

Table 8 Actions to Promote Internal EMS Communications, 2005

Action	Frequency	Scheduled or Completed Date
New ES&H web site	Ongoing updates	June 2005
EMS awareness survey during Earth Day activities	Annual	April 2005
Corporate EMS awareness survey	Annual	July 2005
Corporate EMS article in the "Lab News"	One-time	April 2005
EMS fact sheets	Ongoing	April 2005
ES&H Standard of Performance posters	One-time	July 2005
EMS brochure	One-time	July 2005
EMS updates in the "Environmental Scorecard"	Quarterly	January, April 2005
EMS summary in the annual Site Environmental Report	Annual	June 2005
EMS article in the site newsletter - "The Communicator"	Annual	June 2005
EMS Advisory Team Meetings	Quarterly	March, June 2005
Presentations to:		
SNL/CA Directors and Site VP	Annual	February 2005
Safety, Health, and Environment Advisory Committee	Annual	May 2005
ES&H Coordinators	One-time	April 2005
Targeted Organizations	Ongoing	ongoing
EMS goals, objectives, targets incorporated into IDT reviews	Ongoing	March 2005
Line implementation assessments	Annual	December 2005
EMS during new hire orientation	Ongoing	July 2005
EMS tag line on email communications	Ongoing	January 2005

The Environmental Management Department routinely communicates with external environmental regulating authorities on compliance related issues. These communications are coordinated through the DOE Sandia Site Office as required by DOE (DOE 1994). Regulating authorities also conduct scheduled and unannounced site audits. These audits provide an additional avenue for communicating with our stakeholders and keeping them abreast of our EMS Program.

10 EMS Documentation

Documentation to support SNL/CA'S EMS Program is comprised of both EMS-specific and general corporate and site documents and information sources. The SNL/CA EMS Program Manual is the primary EMS document for the site. It describes all elements of the EMS Program, how these elements connect, and it provides reference to other general documents that support the program. The EMS Program Manual documents the process used to identify significant environmental aspects applicable to site operations, and to establish objectives and targets that are measurable and relevant. It serves as a roadmap for continual EMS implementation, assessment, and improvement. The SNL/CA EMS Program Manual is reviewed and updated annually. Other EMS-specific documentation established for the SNL/CA EMS Program includes a communication plan (Appendix C), quality guidelines (Appendix D), ES&H standard of performance (Section 2), and annual environmental program reports (Appendix A).

Many of the general corporate and site policies, document systems, and data bases, used at SNL/CA are well established and maintained. These information resources support the basic framework of the site's EMS program and include the following.

- ES&H Policy
- Division 8000 ES&H Plan
- ES&H Manual
- Integrated Laboratory Management System
- CBR System
- ISMS
- Emergency Management Program
- Fire Management Program
- Operating procedures
- Preliminary hazard screening and hazard assessment database
- Occurrence reports
- ES&H IDT documents
- Environmental program compliance documents
- NEPA documents
- Corporate training database

11 Document Control

11.1 Corporate Documents

The CBR System Standard (CPR001.1) identifies the document control procedures for the corporate policy statement, corporate policy statement requirements, and corporate process requirements (SNL 2004a). The official version of all CBR System documents is the electronic watermarked version available electronically on the Sandia Restricted Network. These documents are disseminated to the workforce exclusively through the CBR System. They are reviewed and updated at least every two years. Each document is assigned an Executive Policy Sponsor. Only the sponsor or their delegate can approve changes to these documents.

11.2 Technical Work Documents

ES&H requirements and concerns related to activities and operations at SNL/CA are addressed through technical work documents such as operating procedures, preliminary hazard screens, hazard assessments, safety plans, and other similar documents. The procedure for updating and controlling technical work documents is identified in Chapter 21 of the ES&H Manual (SNL 2005d). Version control for routine technical work documents is maintained through the existing electronic database applications.

11.3 Environmental Program Documents

EMS program and other environmental program documents are controlled by the Environmental Management Department (Organization 8516). These documents are reviewed annually as part of the program assessment process outlined in *Quality Assurance of Data, Documents and Select Activities of the Environmental, Safety, and Health Departments, 8516 and 8517* (Appendix D, SNL/CA 2005b). Each program lead controls and approves changes to their documents. The department manager controls and approves changes to EMS-specific documents. Current versions are maintained in active records storage in the ES&H Records Center, and displayed on the SNL/CA ES&H web site.

12 Operational Control

Operational controls at SNL/CA include safety documents, the ES&H Manual, environmental permits and compliance documents, and contract specifications.

12.1 Safety Documents

Safety documentation is required for all operations except the business occupancy (office) category and can be prepared for a facility, laboratory, or an activity. The procedure for preparing and maintaining safety documentation is identified in Section 13A of the ES&H Manual. The initial step in identifying operational controls is accomplished through Sandia's Preliminary Hazard Screen (PHS) question set, an online module that is a component of the ISMS software toolset. The PHS module identifies hazards and hazard classifications, training requirements, and technical work documents needed to conduct an operation safely. Technical work documents are used to define administrative and engineered controls required to address the hazards identified through the PHS. All PHSs are updated annually. Technical work documents are updated every one to five years, or more frequently as needed. PHSs and technical work documents are maintained in various online databases that can be found at http://www.ran.sandia.gov/ESH/resources/index.php.

12.2 ES&H Manual

The ES&H Manual provides basic operational controls for the Sandia workforce (SNL 2005d). It describes the basics of Sandia's ES&H Program. It identifies the boundaries of the program, describes how requirements flow down to Sandia organizations, and defines ES&H roles and responsibilities. The ES&H Manual is a compilation of process requirements and general procedures for complying with ES&H laws, regulations, DOE Orders, and Sandia requirements.

12.3 Environmental Permits and Compliance Documents

Environmental permits and compliance documents function as activity-specific operational controls. They provide conditions under which the SNL/CA site may operate to meet federal, state, and local environmental regulatory requirements. Table 9 provides a list of the permits and documents valid in 2005. The individual environmental program annual reports provide additional information about each type of permit or compliance document (Appendix A).

Table 9 Environmental Permits and Compliance Documents, 2005

Type	Description	Statute / Regulation	Agency /Authority
Air	Permit to Operate 25 emission sources	Clean Air Act	BAAQMD
Environmental restoration	Site Clean-up Order No. 89-184	California Water Code	Regional Water Quality Control Board, San Francisco Bay
Hazardous waste	RCRA Hazardous Waste Facility Permit	RCRA	California Department of Toxic Substances Control
Medical waste	Small Quantity Generator with Onsite Treatment	California Health and Safety Code	Alameda County Environmental Health Department
Medical waste	Small Quantity Generator without Onsite Treatment	California Health and Safety Code	Alameda County Environmental Health Department
Wastewater	Wastewater Discharge Permit	Clean Water Act	City of Livermore Water Reclamation Plant
Storm water	State of California General Industrial Permit	Clean Water Act	State of California Water Resources Control Board
Storm water	State of California Construction Activities General Permit	Clean Water Act	State of California Water Resources Control Board
Underground storage tank	Permit to Operate	Resource Conservation and Recovery Act and California Health and Safety Code	Alameda County Environmental Health Department
Aboveground storage tanks	Storage statement	Aboveground Petroleum Storage Act	State of California Water Resources Control Board
Environmental assessment	Final Site-wide Environmental Assessment of the SNL/CA	NEPA	DOE
Biological resources	Biological and Conference Opinion for SNL/CA	Endangered Species Act	U.S. Fish and Wildlife Service

12.4 Contract Specifications

SNL/CA's contract specifications function as operational controls for contractor-directed work activities. The specifications include requirements for contractors to apply environmental controls in all appropriate work activities to maintain regulatory compliance and support environmental stewardship efforts at SNL/CA. Contractors are also required to report to SNL/CA on their efforts in waste reduction, recycling, and reuse of materials.

13 Emergency Preparedness and Response

SNL/CA has an established Emergency Management Plan and procedures to provide an effective and timely response to emergency conditions. The site's Emergency Management Program was established in accordance with a separate DOE order, *Order 151.1A, Comprehensive Emergency Management System* (DOE 2003d). SNL/CA's Emergency Management Plan outlines roles and responsibilities applicable to emergency response operations, evaluates postulated accident types, and categorizes standard operational emergencies. The Emergency Management Program maintains implementing procedures for all assigned roles that support emergency events on site. SNL/CA conducts an annual training exercise to test all components of emergency response. Routine training drills and communication tests are also completed. The Emergency Management Plan and Emergency Plan Implementing Procedures are available to the site workforce on SNL/CA's web site at http://www.ran.sandia.gov/ESH/.

Emergency response actions support our EMS Program by managing and mitigating the potential environmental risk from site operations. During site emergencies, members of the Environmental Management Department provide support with hazardous materials spill response and clean-up. Through these efforts, potential long-term environmental effects are avoided or minimized.

14 EMS Monitoring, Measurement, and Maintenance

SNL/CA measures EMS performance through the following mechanisms.

- Assessing functional environmental programs
- Monitoring EMS objectives
- Assessing EMS Program implementation

14.1 Functional Program Self Assessments

Each of the six functional environmental programs (Section 6) supporting SNL/CA's EMS conducts an annual self-assessment of all functional program elements. This self-assessment provides an inward look at the management of each functional program. Program leads conduct the functional program self-assessment and document the results in annual program reports (Appendix A). Program elements that warrant improvement are identified through evaluation of self-assessment results. If additional resources are needed to improve the program, the program lead and the manager of the Environmental Management Department prepare an investment request and submit it for approval through the site budget cycle.

14.2 Monitoring EMS Objectives

Each SNL/CA functional environmental program conducts monitoring to assess overall progress in meeting site environmental objectives. For instance, the Environmental Monitoring and Restoration Program routinely samples and analyzes wastewater and storm water for contaminants of concern and other parameters. Data collected provide a measure of the quality of water discharges that can be used to determine if site operations meet permit conditions (compliance objective), or show improvement in sewer water quality (wastewater discharge objective). Program leads report the monitoring results as site metrics and publish these on the SNL/CA ES&H webpage. Table 10 identifies the monitoring activities conducted at SNL/CA in support of each EMS objective[3].

At the end of each calendar year, the EMS Core Team reviews EMS objectives and targets (see Table 5 and Appendix B) and evaluates the sites progress in meeting them. Targets are modified and new action items are established for the upcoming calendar year. As part of this review process, the Core Team identifies additional resources needed to implement current or future action items and submits an investment request through the budget cycle.

[3] Procedures required to ensure calibration of equipment used in monitoring activities are identified in the annual program reports provided in Appendix A. Sampling and analytical protocols are also identified in the program reports.

Table 10 EMS Monitoring Activities

Environmental Aspect	Objective	Monitoring Activity
Compliance	Meet or exceed all applicable environmental requirements	Comparison of site operations to permit conditions, self-assessments
Risk aspects		
Fire risk	Minimize risk of fire	Routine assessments of fire prevention equipment
Hazardous materials	Reduce the inventory of toxic and other hazardous material	Annual container count
Air emissions	Reduce air emissions related to operations and transportation, with emphasis on Spare The Air days	Establishing baseline for comparison in future years
Hazardous waste	Reduce quantities of hazardous waste generated onsite	Track and report on routine waste generation quarterly
Wastewater discharges	Reduce quantity of sewer water generated onsite and improve quality	Routine sampling/analyses of sewer water; weekly monitoring of continuous flow meter at sewer outfall
	Reduce volume and velocity of storm water runoff	Weekly monitoring of continuous flow meter at sewer outfall
	Minimize pollutants in storm water runoff	Routine sampling/analyses of storm water
Opportunity aspects		
Land use and habitat	Enhance the natural habitat	Habitat monitoring plan pending for AS Improvement Program Establishing indicator of site ecological health
	Design buildings using sustainable and *Green* design principles	Pending implementation of new design features
Electrical consumption	Decrease electrical consumption per building (sq ft)	Track annual consumption / compare year to year
Natural gas consumption	Decrease natural gas consumption per building (sq ft)	Track annual consumption / compare year to year
Industrial (solid) waste	Reduce quantity of solid waste transported to landfill through reduced consumption and/or recycling	Track quantity of solid waste recycled annually Track quantity of solid waste disposed at landfill annually
Water consumption	Decrease water consumption per building (sq ft)	Track annual consumption / compare year to year

14.3 EMS Program Assessment

An assessment of the corporate EMS Program and its implementation was initiated in July 2005 by the ES&H, Quality, and Safeguards & Security Department (Organization 12870). The intent of the Organization 12870 assessment was to review progress on EMS Program development and implementation corporate-wide. The results of this interim evaluation found that Division 8000 integrated EMS into planning tools and working documents to a level of excellence exceeding guidance provided by the corporate EMS team. The assessment resulted in only two deficiencies. The first deficiency noted that the SNL/CA EMS Program Manual was 80 to 90 percent complete, but scheduled for completion and approval during

October 2005. Publication of this EMS Program Manual corrects this deficiency. The second deficiency noted that a written EMS self-assessment report was not yet completed for Division 8000. The SNL/CA EMS Core Team completed a self-assessment in preparation for the 12870 audit and, to resolve this deficiency, the Core Team prepared written documentation of this self-assessment in September 2005.

In 2007, SNL/CA expects to apply for certification under the international standard for environmental management systems, ISO 14001. In 2006, SNL/CA plans to focus the EMS Program assessment on ISO requirements. Identification and scheduling of an assessment team will occur over the next year.

15 Evaluating Compliance with Environmental Requirements

Operations at SNL/CA are subject to a variety of environmental requirements including federal, state, and local laws and regulations, DOE directives, corporate policies and procedures, and site-specific standards. SNL/CA evaluates compliance with all environmental requirements through the PHS and IDT processes, self-assessments, and audits.

15.1 PHS Process

The PHS process uses an online tool to identify potential hazards associated with new and continuing activities. Through execution of the PHS tool, technical work documents, training, and personal protective equipment are identified to control safety conditions and environmental releases. All active PHSs are reviewed and updated annually. At SNL/CA, the center ES&H coordinators maintain the PHS database and assist the site workforce with preparation and update of PHSs. The PHS database is available online to all Sandia workers at http://www-irn.sandia.gov/iss/isms_software/.

15.2 IDT Process

The IDT process is used to review SNL/CA projects early in the planning stages and to provide guidance to project proponents on ES&H, security, facilities issues (engineering, maintenance, and operations) and general operational/logistical issues. The IDT meets weekly to review new activities and significant changes to existing activities. This process also serves as an avenue for project proponents to provide feedback that can be used for both project and ES&H process improvement. Each functional environmental, safety, security, and facility operations program has a representative on the IDT. The environmental program representatives provide project proponents with information on environmental objectives, compliance, and other EMS related topics.

15.3 Self-assessments and Audits

Self-assessments and audits of SNL/CA operations may identify deficiencies in an environmental program, process, or system. Generally, assessment and audit teams categorize their opinions into the following four categories.

- Unsatisfactory issue or finding - does not meet primary requirement or management objective
- Needs improvement or observation – some deficiencies identified but main requirements and management objectives are being met, needs improvement to maintain compliance with requirements or permit conditions
- Satisfactory – applicable requirements and management objectives are being met

- Strengths or noteworthy practice – operations and processes exceed basic requirements and warrant mentioning

SNL/CA tracks deficiencies in several databases as identified in Table 11. Environmental program leads and the environmental managers work with the applicable members of the workforce to establish corrective actions and assign completion dates. Sandia managers are responsible for ensuring that corrective actions are implemented, communicating issues and concerns to their organizations, verifying implementation of corrective actions, and reporting to the assessment or audit team when actions are complete.

15.4 Occurrence Management

In addition to the assessment and audit processes described above, Sandia maintains an occurrence management system to resolve nonconformance events at all Sandia sites. Occurrence Management, an element of the Sandia Feedback and Improvement Program, is used to report, analyze, track, and correct nonconforming events that meet specific DOE definitions of an occurrence. The process incorporates root cause analyses, corrective and preventive actions, and lessons learned. Additional information on Occurrence Management is provided on the Sandia intranet at http://www-irn.sandia.gov/esh/f_i/index.htm

Table 11 Comparison of SNL/CA Assessment and Audit Methods

Method	Guidance Document / Driver	Conducted By	Schedule	Scope	Corrective Action Management	Tools
Line Implementation						
Line manager assessment	ES&H Manual Section 22A	Line manager	Annual	All ES&H areas	ES&H self-assessment database	ES&H standards question set
Program line assessment	Administrative operating procedure - AOP 04-04, annual program report	Functional program lead	Annual	Adequacy and effectiveness of processes, adequacy of resources, communication of requirements, line ownership of requirements	ES&H self-assessment database	Self-assessment planning form (Appendix -)
EP Representative assessment	Operating procedure OP472165	EP Representative	Routine / ongoing	Informal, focus on critical environmental requirements and trouble spots	Informal	Not applicable
IDT follow-up assessment	Operating procedure OP471680	EP Representative	Routine / ongoing	Random check of IDT projects (20% per year)	Informal	Not applicable
Audits						
External regulating agency audits and inspections	Federal, state, and local regulations and permits	Functional program lead	Annual	All aspects of facility operations, record keeping, program processes, and adherence to permit conditions / requirements, audits are generally unplanned and unannounced	Corrective action plan / schedule submitted to regulator, department database	Official correspondence
DOE audits	M&O Contract, DOE policies and requirements	DOE auditors	Annual	Subset of ES&H programs audited each year	Corrective action plan, corporate assessment database, department database	Formal audit plan provided by DOE
Management System audits	M&O Contract, Corporate Policy Statement CPS001.3, Corporate Policy Requirement CPR001.3.5	Sandia ES&H, Quality, and Safeguards & Security Assessments Department	Annual	Internal, independent audit of laboratory systems associated with ES&H, Quality, and Safeguards & Security	Corrective action plan, corporate assessment tracking system, department database	Formal audit plan provided by audit team

16 Records

Sandia manages all information created by Sandia work in accordance with *CPSR400.2, Information Management* (SNL 2004c). As defined in this CPSR, information encompasses data, records, published material, and knowledge in written, pictorial, electronic, audio, oral, or other form. To assist the workforce with the requirements for managing information, Sandia developed a Records Management Manual. The Records Management Manual provides guidance on identifying records and non-records, provides a list of federal and DOE requirements governing records management, and summarizes the records retention and disposition schedule. The complete manual is available on the Sandia intranet at http://www-irn.sandia.gov/recordsmgmt/rmm/Requirements.htm.

SNL/CA maintains an additional procedure for managing ES&H records, *OP471347 Administrative Procedures for Managing Sandia/CA ES&H Recorded Information* (SNL/CA 2005a). This procedure incorporates corporate policies, requirements of the Records Management Manual, best business practices, program-specific regulatory requirements, and the requirements of the ISO 14001 standard. Under this procedure, ES&H programs are responsible for transmitting recorded information to the SNL/CA ES&H Record Center for storage and protection. The Record Center establishes file guides for categories of records and assigns a file code number. The file guide describes the record, identifies the retention period, describes the disposition instructions (where applicable), and provides filing instructions. Record Center personnel log all transmitted records into an electronic database. Document titles, dates, authors, and key words are included in the database to assist with tracking and retrieval of records.

SNL/CA established a file guide and code for EMS records in March 2005. The file code is AD-MAN-07.05. EMS program documents and supporting information are filed under this code with a permanent retention. SNL/CA maintains separate file guides and codes for other functional environmental program records that also support the EMS Program.

17 Management Review

At the end of each calendar year, the site management team will review SNL/CA's progress in meeting EMS targets and objectives established in the previous year. The review process involves two levels of review: Safety, Health & Environment Advisory Committee (SHEAC) review and Business Leadership Team review. SHEAC meets monthly to monitor site ES&H performance and to recommend actions to the Business Leadership Team. The Business Leadership Team, which is comprised of the site Vice President and directors, meets routinely to review site business, make decisions, and give recommendations on ES&H policy.

In March 2005, the Environmental Management Representative made a general presentation on EMS development and implementation to the Business Leadership Team. During this meeting, the Business Leadership Team approved the EMS objectives recommended by the EMS Core Team to reduce environmental risk and improve environmental stewardship at SNL/CA. In May 2005, the approved objectives were presented to SHEAC.

Appendix A – Environmental Program Reports

Annual environmental program reports are available on the SNL/CA ES&H website. Listed are the links to each report. The official record of this manual stored in the ES&H Records Center contains a hard copy of each report.

Air Quality Program
http://www.ran.sandia.gov/ESH/EnvManagement/EnvPrograms/AirQuality/documents/AQProgramRpt_000.pdf

Environmental Monitoring and Restoration Program
http://www.ran.sandia.gov/ESH/EnvManagement/EnvPrograms/EnvMonitor/documents/EnvironmentalMonitoringProgReport-2005.pdf

Environmental Planning and Ecology Program
http://www.ran.sandia.gov/ESH/EnvManagement/EnvPrograms/EnvPlan_Ecology/documents/PlanningandEcologyProgReportfinal2005.doc

Hazardous Materials Management Program
http://www.ran.sandia.gov/ESH/EnvManagement/EnvPrograms/HazardousMat/documents/HazardousMaterialManagementProgramReport-2005_000.pdf

Pollution Prevention and Waste Minimization Program
http://www.ran.sandia.gov/ESH/EnvManagement/EnvPrograms/PollutionPreven/documents/PollutionPreventionProgramReport-2005_002.pdf

Waste Management Program
http://www.ran.sandia.gov/ESH/EnvManagement/EnvPrograms/wasteManagement/documents/WMProgramReport2005.pdf

Appendix B – EMS Targets and Action Items for 2005

SNL/CA (Division 8000) Aspects / Impacts - CY05 Action Items
Senior management approved - March 31, 2005

Assigned to:	Operations	Environmental Aspects	Environmental Objective	Environmental Targets	Actions for CY 2005	Percent Complete	Comments
Barbara Larsen	Exterior Maintenance / Operations	Land Use & Habitat	Enhance the natural habitat.	Complete the most critical actions identified in the Management Plan for Arroyo Seco by September 30, 2014	Resubmit JARPA to the US Army Corp of Engineers by January 31, 2005.	100	
	Exterior Maintenance / Operations	Land Use & Habitat	Enhance the natural habitat.		Summarize mitigation requirements identified in the biological opinion and provide to Facilities Engineering for incorporation into facilities planning documents.	100	
	Exterior Maintenance / Operations	Land Use & Habitat	Enhance the natural habitat.	By end of FY07 test two integrated pest management techniques for weed and pest abatement	None for FY05	n/a	
	Exterior Maintenance / Operations	Land Use & Habitat	Enhance the natural habitat.	Establish a demonstration garden using native plants and integrated pest management techniques by October 31, 2008.	None for FY05	n/a	
	Exterior Maintenance / Operations	Land Use & Habitat	Enhance the natural habitat.	By the end of FY09 remove 25% of the star thistles in the outer perimeter area and reseed areas with native grasses.	Prepare an estimate of acres containing thistle in the outer perimeter area.	100	
	Facilities Construction & Deconstruction	Land Use & Habitat	Enhance the natural habitat.	Revise and update the site Landscape Master Plan to better integrate industrial landscaping with native plants (December 31, 2008).	None for FY05	n/a	
	Facilities Construction & Deconstruction	Land Use & Habitat	Incorporate exterior building features into new construction to discourage pigeon roosting and nesting.	Anti-pigeon roosting concepts will be used for all future new construction projects.	None for FY05	n/a	
	Facilities Construction & Deconstruction	Land Use & Habitat	All buildings designed and constructed using "green" principals	100% of all future new building and renovation project designs will meet at least LEED Bronze level design/construction point value.	None for FY05	n/a	

SNL/CA (Division 8000) Aspects / Impacts - CY05 Action Items
Senior management approved - March 31, 2005

Assigned to:	Operations	Environmental Aspects	Environmental Objective	Environmental Targets	Actions for CY 2005	Percent Complete	Comments
	Laboratory & Test Operations	Land Use & Habitat	Enhance the natural habitat.	Return all disturbed areas to pre-test conditions within 90 days of completion of testing / experimental activities.	Prepare a standard notification for outdoor testing activities that can be distributed as part of the IDT evaluation.	100	
Bob Clevenger	Exterior Maintenance / Operations	Water Use	Decrease water consumption per building SF	TBD	Adjust sprinkler timers to prevent overwatering.		
Craig Taylor	Facilities Construction & Deconstruction	Water Discharges (Sewer and Stormwater)	Reduce sewer water quantity and improve quality. Reduce volume and velocity of stormwater runoff. Keep pollutants out of stormwater.	TBD	Verify that construction specifications specify low flow toilets/sinks for all new construction.	100	Specs do include requirement for low flow fixtures.
Dee Dee Dicker	All Operations	Hazardous Waste Minimization	Reduce quantities of hazardous waste generated.	By the end of FY06 increase the recycling of empty containers (previously containing hazardous material) by 30% from a FY04/05 average.	Incorporate empty container recycling program elements into Waste Management training courses.	100	Check sheet is handed out to audience describing requirements to be able to recycle as opposed to processing as waste.
					Develop and execute communications to educate the site about the Container Recycling progam.	100	As part of her EP Rep process she is continually informing line orgs about the container recycling program and how to meet the necessary requirements.
Each PL	General Environmental Operations		Meet or exceed all applicable environmental requirements.	Conduct at least one self assessment per environmental program per year. Corrective action plans will be created for all non-compliance issues identified.	Conduct program self-assessments by Dec. 15, 2005	Env Plan - 50%, Env. Monit. 10%, P2 - 25%	
	General Environmental Operations		Meet or exceed all applicable environmental requirements.	Receive zero findings per audit per environmental program as the result of DOE and external regulatory agency audits.	Incorporate self-assessment corrective actions into environmental programs.		

SNL/CA (Division 8000) Aspects / Impacts - CY05 Action Items
Senior management approved - March 31, 2005

Assigned to:	Operations	Environmental Aspects	Environmental Objective	Environmental Targets	Actions for CY 2005	Percent Complete	Comments
	General Environmental Operations		Meet or exceed all applicable environmental requirements.	Receive no Notices Of Violation (NOV) as a result of any external regulatory agency audit.	Incorporate self-assessment corrective actions into environmental programs.		
Janet Harris	Building Specific Maintenance / Operations	Hazardous Waste Minimization	Reduce quantities of hazardous waste generated.	By the end of FY07 reduce the site's routine hazardous waste quantity by 10% per capita.	Investigate availability of a rag laundering service	10	
	Security Operations	Hazardous Waste Minimization	Reduce quantities of waste generated.	By the end of FY07 reduce the site's routine hazardous waste quantity by 10% per capita.	Develop a process to modify hand washing in security operations (gun range)	10	
	Facilities Construction & Deconstruction	Hazardous Waste Minimization	Reduce quantities of hazardous waste generated.	TBD	Investigate how SNL/NM and LLNL manage contractor generated hazardous waste.	0	Action to be completed in CY 06
	Facilities Construction & Deconstruction	Hazardous Waste Minimization	Reduce quantities of hazardous waste generated.	TBD	Depending on above: Review and modify contract verbiage (as needed) to include sub-contractor responsibilities for managing their hazardous waste	10	Work with facilities - Craig Taylor
	Building Specific Maintenance / Operations	Solid Waste	Reduce quantity to landfill through reduced consumption and/or recycling.	By the end of FY08 increase recycling of non-hazardous maintenance debris by 25% of	Evaluate the location and prepare cost estimate to build a solid waste sorting and	0	Action to be completed in CY 06
John Garcia	All Operations	Electrical Use	Decrease electrical consumption per building SF	Decrease general building electrical use to 26 kilo-watthours per gross square foot on an annual basis by the end of FY10.	Repair electrical metering system to capture building usage of 915 and 916.	10	Work oder in progress. Waiting for convenient opportunity to shut down power necessary to complete work. (Dominguez)

SNL/CA (Division 8000) Aspects / Impacts - CY05 Action Items
Senior management approved - March 31, 2005

Assigned to:	Operations	Environmental Aspects	Environmental Objective	Environmental Targets	Actions for CY 2005	Percent Complete	Comments
	Laboratory & Test Operations	Electrical Use	Decrease electrical consumption per building SF	Decrease metered process (laboratory buildings) electrical use to 200 kilo-watthours per gross square foot on an annual basis by the end of FY10.			
	All Operations	Natural Gas Use	Decrease natural gas consumption per building SF	Decrease general building natural gas use to 46 cubic feet of natural gas per gross square foot on an annual basis by FY10.	None for FY05		
	Laboratory & Test Operations	Natural Gas Use	Decrease natural gas consumption per building SF	Decrease metered process natural gas use (laboratory buildings) by 25% in 2010 over 1990 on a square foot basis per DOE Order 430.2a.	Calculate 1990 baseline usage from old consumption data.	5	Work order assigned to Felver.
	All Operations	Water Use	Decrease water consumption per building SF	TBD	Survey sinks and toilets on-site to establish % that are not low flow.	10	Work oder in progress. (Martinez)
	All Operations	Water Use	Decrease water consumption per building SF	TBD	Validate that we have water meters installed to accurately show SNL/CA consumption.	5	Work order assigned . (Rabb)
	Laboratory & Test Operations	Water Use	Decrease water consumption per building SF	TBD	Survey all laboratories for use of once through potable water for cooling and investigate alternative processes.	20	Initial investigation started. (Neely)
	Security Operations	Electrical Use	Decrease electrical consumption per building SF	By the end of FY07 all exterior security lighing will be of a energy conserving type	Survey all exterior security lighting and prepare specification and cost estimate for changeout.	5	Work order assigned. (Martinez)
Laurie Farren	All operations	Electrical Use	Decrease electrical consumption per building SF	Decrease building use to 26 kilo-watthours per gross square foot on an annual basis by the end of FY10. Decrease metered process (laboratory buildings) use to 200 kilo-watthours per gross square foot on an annual basis by the end of FY10.	Perform public/sitewide outreach to encourage reduction of electric use.	25	

SNL/CA (Division 8000) Aspects / Impacts - CY05 Action Items
Senior management approved - March 31, 2005

Assigned to:	Operations	Environmental Aspects	Environmental Objective	Environmental Targets	Actions for CY 2005	Percent Complete	Comments
	Building Specific Maintenance / Operations	Hazardous Materials	Reduce quantities and toxicity of hazardous material	By the end of FY05 reduce site hazardous material container inventory count by 10% from the baseline: 36,026 containers on 9/1/2004.	Investigate alternative exit signs and smoke detectors that contain no hazardous material.	10	Action to be completed in CY 06
	Building Specific Maintenance / Operations	Hazardous Waste Minimization	Reduce quantities of hazardous waste generated.	By the end of FY07 reduce the site's routine hazardous waste quantity by 10% per capita.	Investigate non-hazardous material alternatives for maint. actions. Execute PPOA for maintenance oils, lubricants, pesticides	0	Action to be completed in CY 06
	Exterior Maintenance / Operations	Hazardous Waste Minimization	Reduce quantities of hazardous waste generated.	By the end of FY07 reduce the site's routine hazardous waste quantity by 10% per capita.	Investigate the onsite recycling of waste oils	20	
					Investigate the use of alternative lubricants for maintenance vehicle fleet & equipment	0	Action to be completed in CY 06
					Investigate replacement of gas dispener nozzles with latest technology to help prevent overfilling.	75	
	Exterior Maintenance / Operations	Solid Waste	Reduce quantity to landfill through reduced consumption and/or recycling.	TBD	Investigate the feasibility of a tyvek garment recycling program.	20	
	Exterior Maintenance / Operations	Solid Waste	Reduce quantity to landfill through reduced consumption and/or recycling.	By the end of FY06 decrease the purchase of pesticide containers by 20% from FY04/05 average.	Work with maintenance to facilitate the purchase of items in bulk containers and transfer to reusable aerosol cans	0	Action to be completed in CY 06
	Facilities Construction & Deconstruction	Solid Waste	Reduce quantity to landfill through reduced consumption and/or recycling.	By the end of FY07 increase recycling of construction debris by 20% of FY04/05/06 average.	Develop a process and implement to obtain valid recycle information from contractors.	75	
	All operations	Solid Waste	Reduce quantity to landfill through reduced consumption and/or recycling.	By the end of FY08 recycle 90% of site wood waste.	Establish a collection point for box & crate chipping and investigate funding options for chipper.	50	

SNL/CA (Division 8000) Aspects / Impacts - CY05 Action Items
Senior management approved - March 31, 2005

Assigned to:	Operations	Environmental Aspects	Environmental Objective	Environmental Targets	Actions for CY 2005	Percent Complete	Comments
	Facilities Construction & Deconstruction	Solid Waste	Reduce quantity to landfill through reduced consumption and/or recycling.	By the end of FY08 recycle 90% of site concrete and asphalt debris.	Evaluate the cost of purchasing a concrete and asphalt crusher	10	
	Laboratory & Test Operations	Hazardous Waste Minimization	Reduce quantities of hazardous waste generated.	By the end of FY07 reduce the site's routine hazardous waste quantity by 10% per capita.	Prepare an Investment Request to purchase a solvent-free Paint Gun Cleaner for painting operations.	100	New Paint Gun Cleaner purchased and is in use.
	Laboratory & Test Operations	Solid Waste	Reduce quantity to landfill through reduced consumption and/or recycling.	By the end of FY06 increase the amount of paper that is recycled by 20% from the FY04/05 average.	Develop and execute communications to educate the site about the paper recycling progam.	80	
	Laboratory & Test Operations	Solid Waste	Reduce quantity to landfill through reduced consumption and/or recycling.	TBD	Establish a baseline for the amount and type of equipment advertised to the Site for re-use.	5	Action to be completed in CY 06
	Office Operations	Hazardous Waste Minimization	Reduce quantities of hazardous waste generated.	By the end of FY06 increase the purchases made by Affirmative Procurement Program by 5% from FY03/04/05 average.	Develop training for the site on the Affirmative Purchasing Program. Provide training to Procurement and each Center.	50	
	Security Operations	Hazardous Materials	Reduce quantities and toxicity of hazardous material	TBD	Investigate and propose to security alternative bullet caliber and material type for range operations.	10	
Lee Gardizi	All Operations	Air Emissions	Reduce air emissions related to operations and transportation, with particular emphasis on Spare The Air days.	By the end of FY08 sitewide mobile source emissions will be reduced by 10% from FY05 baseline.	Establish baseline of emissions.	30	
					Develop Draft Cart Management Program Plan	0	
	All Operations	Air Emissions	Reduce air emissions related to operations and transportation, with particular emphasis on Spare The Air days.	By the end of FY06 reduce the number of on site fueling operations by 50% on Spare The Air days from an 03/04 baseline.	Establish a baseline of number of fueling operations performed on STA days.	95	

SNL/CA (Division 8000) Aspects / Impacts - CY05 Action Items
Senior management approved - March 31, 2005

Assigned to:	Operations	Environmental Aspects	Environmental Objective	Environmental Targets	Actions for CY 2005	Percent Complete	Comments
	Facilities Construction & Deconstruction	Air Emissions	Reduce air emissions related to operations and transportation, with particular emphasis on Spare The Air days.	By the end of FY08 reduce paint shop emissions (VOCs) by 25% from FY05 baseline.	Establish baseline of paint shop emissions.	30	
	Off-site Transportation	Air Emissions	Reduce air emissions related to operations and transportation.	Future target of increased used of alternative transportation.	Conduct survey to determine how SNL staff currently get to work.	10	
	On-site Transportation	Air Emissions	Reduce air emissions related to operations and transportation.	By the end of FY08 sitewide mobile source emissions will be reduced by 10% from FY05 baseline.	Establish a baseline of emissions.	30	
	On-site Transportation	Hazardous Waste	Reduce quantities of hazardous waste generated.	By the end of FY07 reduce the site's routine hazardous waste quantity by 10% per capita.	Develop Draft Cart Management Program Plan	0	
Mark Brynildson	All Operations	Hazardous Materials	Reduce quantities and toxicity of hazardous material	By the end of FY05 reduce site hazardous material container inventory count by 10% from the baseline: 38,807 containers on 9/1/2004.	Train members of the workforce to avoid excessive hazardous material purchasing including hazardous material exchange.	10	
					Report individual hazardous material inventory > 10 years old to all organizations . Include ES&H regulations / 12870 CAP arguments to encourage inventory reduction.	100	
					Require that the hazardous material inventory container reduction be included in the bienniel site-wide cleanup campaign.	100	
					Investigate and document the feasibility of a Chemical Pharmacy	50	

SNL/CA (Division 8000) Aspects / Impacts - CY05 Action Items
Senior management approved - March 31, 2005

Assigned to:	Operations	Environmental Aspects	Environmental Objective	Environmental Targets	Actions for CY 2005	Percent Complete	Comments
	All Operations	Hazardous Materials	Reduce site quantities and toxicity of hazardous material	By the end of FY05 reduce the toxicity (NFPA Health Hazard 3 and 4 laboratory chemicals) of our chemical container inventory by 10% from the baseline: number of containers on 9/1/2004.	Report to all organizations individual hazardous material inventory by NFPA Health 3/4 to encourage inventory reduction and reduce general inventory toxicity.	100	
					Implement additional disposal actions required to meet reduction goal.	100	
	Off-site Transportation	Hazardous Materials	Reduce quantities and toxicity of hazardous material	TBD	Investigate the consolidation and reduction of shipments to and from SNL that will reduce the number of off site transports	10	
Marty Gresho	Building Specific Maintenance / Operations	Fire Risk	Minimize risk of fire.	Zero fires associated with building maintenance & operations	Provide Hot work and fire safety training to maintenance staff.	10%	Refresher training regarding Hot Work and Fire Safety for all maintenance. TNT announcements have been sent to site wide distributjion and targeted emails to Maintenance staff have been issued regarding hot work and the start of special measures for prevention of wildland fires. Landscape crew has been primary target.
	All Operations	Fire Risk	Minimize risk of fire.	Zero fires associated with exterior maintenance operations.	Modify CA Fire Protection Plan to include grassland wildfire prevention plan.		Not Started. Est. of completion 8/05
	Facilities Construction & Deconstruction	Fire Risk	Minimize risk of fire.	Zero fires associated with construction and deonstruction	Enhance planning and communications with contractors related to fire protection prior to construction.	25%	In Progress. Communications during pre const. conferences continues. The essential elements of the grassland fire prevention plan will be included as part of contract documents. FP attends presconstruction conferences to determine if work methods will require access to grassland areas and explains requirements where relevant.

SNL/CA (Division 8000) Aspects / Impacts - CY05 Action Items
Senior management approved - March 31, 2005

Assigned to:	Operations	Environmental Aspects	Environmental Objective	Environmental Targets	Actions for CY 2005	Percent Complete	Comments
					Modify specifications to be more specific on tar kettle operations	100%	Complete. Text has been developed and incorporated into template specification for roofing operations.
	All Operations	Fire Risk	Minimize risk of fire.	Zero non-compliant portable space heaters by end of FY06	Initiate a site survey of all building areas and identify all non-compliant heaters.	40%	Plan to survey all site areas by 12/2005 as part of self assessment process.
	Laboratory & Test Operations	Fire Risk	Minimize risk of fire.	By the end of FY08 a gas detection system will be connected to both the building fire alarm system and the laboratory safety system for each lab where the flammable gas quantities exceed the exempt quantities (0.012ft3 of gas/ft2 of lab floor space or 12ft3 of gas per 1000ft2 of lab space.	Survey all site laboratories and identify those who meet the criteria and do not have gas detection systems. Report these to Facilities Planning and Engineering for funding scheduling.		Not Started.
Robert Holland	Building Specific Maintenance / Operations	Water Discharges (Sewer and Stormwater)	Reduce sewer water quantity and improve quality.	Show a downward trend in Zinc and Copper in sewer effluent on an annual basis.	Facilities to modify or develop procedures to include the requirement for technologies to clean tower water basins when new cooling towers are installed.	100	
	Exterior Maintenance / Operations	Water Discharges (Sewer and Stormwater)	Reduce sewer water quantity and improve quality. Reduce volume and velocity of stormwater runoff. Keep pollutants out of stormwater.	100% Inspection / cleaning of on-site storm drain system including drop structure by October 1 of each year.	Inspect and clean 100% storm drain by Oct 1, 2005	0	Facilities maintenance in progress. Log sheets to be submitted to Env. Monitoring monthly.
	All Operations	Water Discharges (Sewer and Stormwater)	Reduce sewer water quantity and improve quality. Reduce volume and velocity of stormwater runoff. Keep pollutants out of stormwater.	By Sept 1, 2005 of each year implement runoff controls for 100% of bulk erodable landscape and construction material.	By August 1 identify all materials needing erosion controls and implement.	50	Now tha construction at 972 is done, need to re-inspect.
	All Operations	Water Discharges (Sewer and Stormwater)	Reduce sewer water quantity and improve quality. Reduce volume and velocity of stormwater runoff. Keep pollutants out of stormwater.	TBD	Review consultant study to reduce stormwater runoff and identify specific projects for planning/scheduling.	0	Consultant study never received by Sandia

SNL/CA (Division 8000) Aspects / Impacts - CY05 Action Items
Senior management approved - March 31, 2005

Assigned to:	Operations	Environmental Aspects	Environmental Objective	Environmental Targets	Actions for CY 2005	Percent Complete	Comments
	Facilities Construction & Deconstruction	Water Discharges (Sewer and Stormwater)	Reduce sewer water quantity and improve quality. Reduce volume and velocity of stormwater runoff. Keep pollutants out of stormwater.	100% of new construction will have post-construction runoff equal to or less than pre-construction runoff.	Create an appropriate set of BMPs to implement on future projects and provide to facilities so they can be incorporated into designs.	95	
					Inspect construction sites for compliance with stormwater regulations.	N/A	
					Review construction specifications and modify as needed to include erosion controls.	75	
	Facilities Construction & Deconstruction	Water Use	Eliminate use of potable water for dust suppression.	TBD	Investigate the cost and details of installing a reclamation or stormwater collection system.	20	
	Facilities Construction & Deconstruction	Water Use	Decrease water consumption per building SF	By end of FY06 100% all water system designs shall conform to water conserving specifications	Review construction specifications and modify as needed to include water conserving features.	75	
	General Environmental Operations		Meet or exceed all applicable environmental requirements.	Conduct at least one self assessment per environmental program per year. Corrective action plans will be created for all non-compliance issues identified.	Include format and protocol for conducting program self-assessments in the 8516 Quality Assurance Plan under development.	100	

Appendix C – SNL/CA Communication Plan Supplement

Sandia National Laboratories, California
Communication Plan Supplement

Approval by:

Original approved _____ 3/24/05
Gary Shamber, Manager, 8516 Date
SNL/CA Environmental Management Representative

The following provides a description of the additional EMS program communications related elements incorporated at the Sandia National Laboratories, California (SNL/CA) site.

1

1. SNL/CA Communications Staff Elements

In addition to the corporate staff elements used in the communications of EMS, the CA site has the following:

1.1 Interdisciplinary Team (IDT):

IDT is a team of subject matter experts in ES&H, facilities and security who sponsor regular presentations by line on proposed projects and actions. During and following the presentation the IDT determines and communicates environmental requirements and recommendations that will be important for the line to incorporate in their planning and execution of the project or action.

Role as Audience:

- Presentation by line elements on proposed actions or projects that may have ES&H implications.

Role as Communicator:

- Communicate environmental regulations/requirements so these can be incorporated into the project planning and execution
- Communicate and discuss alternatives to proposed actions that can help support environmental objectives / targets and best business practices.

1.2 SNL/CA Senior Management EMS Steering Committee

The EMS Steering Committee consists of the site VP, the Site Operations Director, the site's Environmental Level II and Department Managers and a Line Director

Role as Audience:

- Receive an annual briefing by the site appointed Environmental Management Representative on the status, progress and issues of the EMS

Role as Communicator:

- Provide senior management guidance on site goals and objectives
- Provide site environmental policy execution and standards of performance
- Approve annual site environmental objectives and targets
- Communicate EMS with site senior management

1.3 SNL/CA EMS Advisory Team

This team consists of the SNL/CA EMS Core Team and line representatives.

Role as Audience:

- Receive information on site EMS implementation and status
- Receive information on future EMS plans and direction.

Role as Communicator:

- Communicate line/program issues that may affect EMS application in the line
- Recommend EMS execution actions with the line
- Recommend types of EMS communications that will be most effective
- Provide feedback to the SNL/CA EMS Core Team on EMS execution

1.4 SNL/CA Environmental Management Representative and SNL/CA EMS Core Team

This team manages the day to day execution and application of EMS for the CA site. This team is chaired by the site's VP appointed Environmental Management Representative.

Role as Audience:

- Receive and process feedback and recommendations from SNL/CA EMS Advisory Team and SNL/CA EMS Steering Committee
- Receive and process feedback from site surveys and line assessments
- Participate on corporate EMS team

Role as Communicator:

- Provide EMS status and information to SNL/CA EMS Advisory Team and SNL/CA EMS Sr. Mgmt. Steering Committee
- Provide EMS status and information to the site workforce in targeted as well as scheduled briefings and presentations.
- Communicate EMS goals, objectives and targets to site workforce using a variety of communications devices.
- Conduct an annual presentation to the site's Safety, Health and Environmental Advisory Committee (SHEAC).

Note: Because of the size of the site, the differences in management structure/elements and the role of the SNL/CA EMS Core Team, the EMS at SNL/CA will not utilize the SNL/CA ES&H Coordinators to the extent as those at the SNL/NM site.

2. Communication Tools

In addition to the corporate tools available for communications the SNL/CA site has the following:

2.1 Publications

The Communicator – Provides occasional stories about SNL/CA's endeavors in the area of environmental management.

TNT- Timely CNL/CA environmental announcements will be presented on a regular basis. Included will be statistics, reminders to think environmentally, and ways people can incorporate environmentally friendly practices in their daily activities.

Environmental Scorecard- A quarterly published report to all site managers and members of the workforce that provides a status on environmental objectives and targets.

2.2 Web Based Communications

SNL/CA ES&H web site (Internal) – A comprehensive ES&H web site that is being modified to provide an environmental Standard of Performance statement from the site VP as well as quick links to corporate and site environmental goals, objectives and targets and other related site.

SNL/CA External 8000 web page – An external website designed for communications to the external community. Will provide links to appropriate corporate environmental web sites and site environmental policies and EMS activities.

2.3 Other –

New Hire Orientation Briefings – The new hire briefing will cover an EMS introduction and site environmental policies and activities.

EMS Information for Recruitment – SNL/CA recruiters will be provided with a brochure on the site EMS to give to potential new hires

Annual Site EMS Presentation - Each year the EMS Core Team will sponsor a site wide presentation on environmental issues, progress and challenges.

Environmental Program's Line Implementation Assessments – Each environmental program will conduct a line assessment of its implementation of environmental practices and actions in support of approved site objectives and targets. Program line audits or assessments have been reported by other sites as a highly effective communications exchange.

3. SNL/CA Specific EMS Communication Methods

The table below provides information on unique SNL/CA methods of communicating EMS-related information and the annual schedule for these actions.

SNL/CA EMS Communication Methods				
Action	**Communicator**	**Audience**	**Method**	**Schedule**
Interdisciplinary Team (IDT) Project Reviews	Subject Matter Experts/Members of IDT	Presenters of Proposed Projects	Meeting, Minutes, SME written responses	Weekly
"Communicator" articles	EMS Core Team	Members of Workforce	Publication	Bi-monthly
"Environmental Scorecard"	EMS Core Team	Members of Workforce	Publication	Quarterly
Annual Site Environmental Presentation	EMS Core Team	Members of Workforce	Presentation	July
Annual Site Environmental Report	EMS Core Team	External Community	Publication	July
Earth Day Activities	EMS Core Team	Members of Workforce	Various	April
Target Organizational Presentations	EMS Core Team	Select Line Organizations	Presentation	Various
Senior Management Annual Presentation	EMS Management Representative	Senior Site Management	Presentation	February
External 8000 Web Page	EMS Core Team	External Community and Potential Hires	Web	Continuous
SNL/CA ES&H Web Site	EMS Core Team	Members of Workforce	Web	Continuous
New Hire Orientation Briefings	EMS Core Team	New Members of Workforce	Presentation	Routine
Contractor EMS Supplement	EMS Core Team	Site Contractors	Letters / Brochure	Routine
External News Articles	EMS Core Team	External Community	News Article	Routine
EP Rep Line Visits and Assessments	EP Rep	Line Organizations	One-on-one	Routine
TNT	EMS Core Team	Members of Workforce	Publication	Varies
ENV 233	EMS Core Team	Waste Generators	Classroom Training	Annual
Banners / Posters / Handouts	EMS Core Team	Members of Workforce	Misc. Distribution	Routine
Recruiting	Recruiters	Potential New Hires	Brochures	Varies

5

Appendix D – ES&H Quality Assurance

Quality Assurance of Data, Documents and Select Activities of the Environmental, Safety and Health Departments, 8516 and 8517

Sandia National Laboratories, California

Approved:

Gary Shamber, 8516 Date

Donn Wright, 8517 Date

Ed Cull, 8510 Date

1.0 ORGANIZATION

Environmental Operations Department (8516) at Sandia National Laboratories, California manages the following site environmental programs:

- Air Quality
- Environmental Planning
- Environmental Monitoring and Restoration
- Waste Management
- Pollution Prevention / Waste Minimization
- Hazardous Materials Management
- Chemical Inventory System

Health and Safety Department (8517) manages the following worker health and safety programs:

- Industrial Hygiene
- Safety Engineering
- Radiation Protection
- Self Assessments
- ES&H Coordination
- Occurrence Reporting
- Injury/Illness Reporting

2.0 SCOPE

This document defines general procedures, actions and activities implemented to ensure that all ES&H data and documents produced by these departments are managed and maintained in a manner that ensures their accuracy, consistency, validity and retrievability. It applies, but is not limited to the following:

- all data collected, used or generated
- technical work documents
- technical reports and official correspondence
- SNL/CA ES&H web pages and associated/included links
- directory and reference information
- Internal and External Audit Corrective Action Plans

This document also addresses certain procedures, actions and activities implemented to ensure the high quality of two department processes including:

- training
- annual program assessments for program effectiveness

Each ES&H program will determine the need to produce a program-specific quality assurance plan. If required, these plans are expected to vary based on the requirements of the individual programs, but should contain, at a minimum, the 10 QA criteria listed in DOE Order 414.1B and 10 CFR 830.122.

This document tiers from the SNL/CA Quality Assurance Program Plan found at https://wfsprod01.sandia.gov/groups/srn-uscitizens/documents/document/wfs070514.pdf

3.0 DATA – Collected, Used or Generated

Data collected, used or generated by the staff within ES&H must be representative, complete, comparable, accurate, and precise as follows:

- Representative. Determine data collection or sampling methods. Establish rationale for sampling scheme. Samples collected will be handled in accordance with OP471310 *Administrative Procedure for Control of Samples by the Environmental Operations Department.* All data must be accompanied with appropriate and consistent units of measure.
- Complete. Determine the acceptable quantity of data actually collected compared to the quantity of data planned to be collected.
- Comparable. When possible, sample collection strategies and methods will be based on published guidelines or standards, such as Occupational Safety and Health Standards, Federal Standards, or national consensus standards such as ASTM, ANSI, or other industry standard.
- Accurate. Determine appropriate methods to assure the accuracy of the data.
- Precise. Determine appropriate methods to assure the precision of the data.

All chemical analytical data must meet the requirements of OP471613 *Verification of Laboratory Chemical Analysis Data.*

3.1 Data Management

Hardcopies of data will be maintained in accordance with OP471347 *Administrative Procedures for Managing Sandia/CA ES&H Recorded Information.*

Where feasible and desirable data may be maintained electronically. This may take many forms, and is left to the discretion of the Program Leads. At a minimum, the data maintained electronically will be verified to be complete and accurate on an annual basis. Electronic data will either be stored on a corporate server (to ensure daily back-ups), or backed-up monthly using removable media (i.e. CDs or DVDs).

3.2 Data Analysis

Any required statistical analyses of data will be carried out in accordance with either: 1) guidance on statistical analyses provided by a regulatory agency, or

2) guidance pertinent to the type of data, quantity of data, and end use of the analysis. This guidance may be found in textbooks, statistics software or obtained from specialized training.

4.0 TECHNICAL WORK DOCUMENTS

Technical Work Documents (TWD) are formally approved work documents used to identify activity-specific hazards and their associated work control measures. TWDs may include the following:

- standard operating procedures (SOPs)
- health and safety plans (HASPs)
- operating procedures (OPs)
- permits, such as safe work permits (SWPs) and radiological work permits (RWPs)
- data packages for pressure and vacuum systems
- safety and health programs for hazardous waste operations (HAZWOPER)
- plans, such as emergency response plans and facility- or building-specific evacuation/emergency plans.

TWDs will be produced in accordance with ES&H Manual Chapter 21 *Technical Work Documents (TWDs).*

TWDs must be reviewed and approved before the work activities are performed. If a TWD expires before a planned revision or scheduled update is completed, the responsible Department Manager will issue a memorandum to file extending the previous revision expiration date. The extension shall be for a period of no longer than 60 days.

Substantive changes require an Interim Change Notice to be submitted and approved as described in EP401502 *Procedure for Control of Environment, Safety, and Health (ES&H) Documents*.

For minor changes to TWDs, it is acceptable to line through text and write in new text on the working copy, sign and date the changes. These changes should also be reflected on electronic versions of the TWD. The original shall be updated during the next revision cycle to reflect all minor changes recorded on the working copy.

Each ES&H program lead will conduct an annual review of TWDs supporting their respective program as part of the program annual self assessment. The review will be documented using the *Programmatic Document Review Form*. (Attachment A). The review shall consider the TWDs as a "system" of documents and assure that each is appropriately cross referenced and use consistent content. Upon completion, the form shall be submitted to the ES&H Records Center and incorporated as part of the annual program self assessment documentation.

4.1 Operating Procedures

Operating Procedures will be developed in accordance with GN470098 Developing ES&H Procedures. Operating Procedures are assigned a review period by the author between one to three years. An email notification is sent to the author 60 days and 30 days before the procedure is due to expire. It is recommended that each program keep an updated list of procedures and their expiration dates in order to assure that the document does not become expired.

4.2 Primary Hazard Screens and Hazard Analyses

Primary Hazard Screens (PHSs) and Hazard Analyses (HAs) are required to be produced before any new activity or operation that represents significant risks. PHSs and HAs must be reviewed on an annual basis. Notification of impending expiration is given to the author by the ES&H Coordinators. In addition the corporate data base issues a notice 30 days in advance of the expiration.

5.0 TECHNICAL REPORTS, DOCUMENTS and OFFICIAL CORRESPONDENCE

All SAND reports will be produced in accordance with the current guidance for producing SAND documents. Guidance for producing SAND reports is available as SAND 2002-2068P.

Other program documents include plans, reports, permit applications, or other documents required by DOE or other regulatory agencies. These will be reviewed and updated as required by the pertinent regulation or other published guidance.

5.1 Style Guide

The ES&H Departments will follow the Center 6300 Writer's Guide for all documents produced with the exception of SAND reports. The Center 6300 Writer's Guide can be found at: http://www-irn.sandia.gov/corpdata/esh-manuals/eshmc/WriterGuide/writerguide.htm.

5.2 Approved ES&H Acronyms and Definitions

Acronyms commonly used by the ES&H Departments will be consistently applied in all documents. The approved list of acronyms is included as Attachment B. Word definitions will be consistent with the ES&H Manual Glossary.

5.3 Approved ES&H Job Positions/Titles

Approved job positions/titles within the ES&H Departments are included as Attachment C. These titles should be used consistently throughout all department TWDs, technical reports and official correspondence.

6.0 SNL/CA ES&H WEB PAGES AND LINKS

Web pages will be designed in accordance with the *How to Write Web Pages for SNL's Webs*, which can be found at:
http://www-irn.sandia.gov/webmentor/write-pages/index.htm.

Each Department Manager and Program Lead will review for completeness and accuracy the web pages and the included or associated links that support the department or respective programs. This will be completed during the annual program self assessments. The review shall include, but not necessarily be limited to:

- Review content for concurrence with the referenced program requirements and activities.
- Review contact information to ensure that current program personnel are listed.
- Test all links on web pages.

The review of these will be documented using the *Programmatic Document Review Form* (Attachment A).

7.0 DIRECTORY AND REFERENCE INFORMATION

All department directories and staff reference information will be reviewed no less than quarterly by the department office management assistant for accuracy and completeness.

8.0 JOB QUALIFICATIONS AND TRAINING

Each position within the ES&H Departments provides unique support to the EMS and ISMS. It is important that each staff member of the department be qualified and well trained to perform the duties of the position.

8.1 Job Qualifications

The required job qualifications of each staff position are determined by the department manager. These qualifications are based on a combination of academic credentials, prior applicable experience, specialized credentials, and subjective attributes determined to be necessary for the position. The department manager will follow the corporate guidance for filling vacancies or new positions within the department. The department manager will exercise the right to move existing staff to new positions within the department as necessary for improved operations and/or staff development or growth.

8.2 Job Training

There are three types of training applicable to members of the workforce within the ES&H Departments. These are:

- General corporate required training.
- Specific training required to perform the assigned job function (as determined by the department manager and/or program lead).
- Specific training required by regulations (as determined by the program lead).

It is the responsibility of the department manager, in consultation with the program leads (where appropriate) to identify the required training for each member of the workforce within the ES&H departments. Required training shall be identified for each position listed in Attachment C "Approved ES&H Job Positions/Titles."

It is the responsibility of each member of the workforce to ensure that their training requirements are met and remain current.

8.3 Lapses in Training

For training that includes a requirement for periodic re-training or re-certification, a lapse is considered to have occurred after a member of the workforce does not meet the deadline for re-training or re-certification.

When such a lapse occurs, the staff member will discontinue all activities governed or associated with the training until such time the re-training or re-certification is completed, unless a temporary authorization is approved by the Department manager

9.0 ENVIRONMENTAL PROGRAM'S ASSESSMENT

Annually, each program within the ES&H Departments will conduct assessments to determine the program's efficiency and effectiveness. Assessments need not cover the entire breadth of the program in a given year; they may be focused on a specific subset of elements of the program. It is anticipated, however, that all program elements will be assessed at least once in a three year period.

The ES&H Departments will follow the Self Assessment Program Operating Procedure OP471726.

For the Environmental Operations Department the following two program assessments are to be performed annually for each environmental program:

9.1 Program Self Assessment

The Program Self Assessment is an annual effort to determine the completeness, quality and efficiency of the program structure and

management. It shall also be used to determine the alignment of the program with ISO14001 EMS requirements and principles.

The objective of this assessment is to assure that the program provides all of the required elements and continually strives for areas of improvement. This assessment will include a review of all procedures, processes, technical work documents, web pages, publications, communications, etc. of the program to assure that they are streamlined, accurate and current. The *Programmatic Document Review Form* should be used to document this part of the self assessment. (Attachment A).

9.2 Program Line Implementation Assessment

The Program Line Implementation Assessment is an annual effort to determine how well the line or site is implementing the provisions or requirements of the program or supporting specific program-related objectives/targets. The success or failure of the line or site to implement program requirements or provisions can be attributed to many things: culture, line management support, communications, program management, etc. (Note: Poor program implementation by the line may not necessarily indicate poor program management or execution, but the Program Lead should consider whether these are contributing factors and take appropriate action.)

Significant line violations to program requirements that are discovered during this assessment shall be input into the ES&H Self Assessment database for communications and tracking. (Note: the assessment should be "big picture" and not just conducted to find violations.) See Attachment D for the *Assessment Finding Form*. The completed form is submitted to the Division 8000 ES&H coordinator for entry into the self-assessment tracking system.

In conducting these assessments the Program Lead shall consider aligning with the scheduled Line Self Assessments conducted by the ES&H Coordinators. This will minimize the disruption to the line and gain the manager's attention.

For Dept 8516 each assessment and its results shall be summarized in the annual update of each environmental program's Program Plan. It shall include:

- A discussion of the scope of the assessment and the rationale,
- The methods used to conduct the assessment,
- A clear summary of the results,
- A discussion of the findings, strengths/weaknesses, recommendations, and areas for improvement.
- A summary of actions taken.

For Dept 8516 two additional department assessment activities will be conducted within the department to determine the implementation of environmental program requirements by the line. The results of each of these shall be provided to the Program Leads to be used as additional input to either of the above two required program assessments:

9.3 Environmental Programs Representative Assessment

The Environmental Programs Representative will perform and record informal assessments of line implementation of critical program elements as negotiated with each program lead. These are not formally scheduled but are conducted on an on-going basis as part of the EP Reps scope of duties. See OP472165.

9.4 IDT Requirements Follow-Up Assessment

IDT reviews may generate environmental program requirements that the line presenter must address as part of the execution of his project. The IDT Requirements Follow-Up Assessment is a random "spot check" on a percentage of projects presented at IDT to determine if the requirements that were given as a result of IDT were implemented by the line. The Environmental Program Representative / IDT Coordinator will perform this follow-up assessment. The results of these follow-up assessments may be useful input into the program self assessments. See OP471680.

All four assessments described above shall be documented and retained in accordance with OP471347 Administrative Procedures for Managing Sandia/CA ES&H Recorded Information.

Attachment A
PROGRAMMATIC DOCUMENT REVIEW FORM

PROGRAMMATIC DOCUMENT REVIEW FORM

Document Type	Document Title	Review Complete / Date	Changes Made
Operating Procedure	Sanitary Sewer Outfall Monitoring (OP471410)	☐	☐ Yes ☐ No
	Incident Reporting (OP471608)	☐	
	Categorical Process Monitoring (OP471409)	☐	☐ Yes ☐ No
PHS	SNL8A00186-009 Environmental Monitoring	☐	☐ Yes ☐ No
Other Program Documents	Environmental Program Description	☐	☐ Yes ☐ No
	Stormwater Pollution Prevention Plan for Construction Activities	☐	☐ Yes ☐ No
	Stormwater Pollution Prevention Plan (Industrial + MS4)	☐	☐ Yes ☐ No
Web Pages	Program General Web Page	☐	☐ Yes ☐ No
	Stormwater Web Page	☐	☐ Yes ☐ No
	Sanitary Sewer Web Page	☐	☐ Yes ☐ No
	SPCC Training Page	☐	☐ Yes ☐ No

Example

Organization:_____

Program:_____

Date:_____

Signature:_____
Program Lead

Directions:

- Use this form to track review of all programmatic TWDs.
- Fill in the type and title of your program documents
- After completion, file form with your program records.

Attachment B
APPROVED ACRONYMS

Acronyms

AAQS – Ambient Air Quality Standards
ABIH – American Board of Industrial Hygiene
ACGIH – American Conference of Government Industrial Hygienists
ADA – Americans with Disabilities Act
ALARA – As Low As Reasonably Achievable
ANSI – American National Standards Institute
ASER – Annual Site Environmental Report
ASLL – facility code assigned to SNL/CA by Nevada Test Site
ATC – Authority to Construct
ASTM – American Society for Testing and Materials
AWCO – Alternate Waste Certification Official
BA – Biological Assessment
BAAQMD – Bay Area Air Quality Management District
BCSC – Biological Chemistry Safety Committee
BiOp – Biological Opinion
BMBL – Biosafety in Microbiological and Biomedical Labs
BSL – Biosafety Level, e.g. BSL-1 is biosafety level 1, etc.
BTEX – Benzene, Toluene, Ethylbenzene, and Xylene
CAA – Clean Air Act
CAAA – Clean Air Act Amendments
CARB – California Air Resources Board
CCR – California Code of Regulations
CDC – Centers for Disease Control
CDFG – California Department of Fish and Game
CERCLA –Comprehensive Environmental Response, Compensation, and Liability Act
CESA – California Endangered Species Act
CFC – Chlorofluorocarbons
CFR – Code of Federal Regulations
CIH – Certified Industrial Hygienist
COC – Chain-of-Custody
CRD – Confidential Restricted Data
CRLF – California Red-Legged Frog
CRMP – Cultural Resources Management Plan
CTS – California Tiger Salamander
DOD – US Department of Defense
DOE – US Department of Energy
DOT – US Department of Transportation
DQO – Data Quality Objective
DR – Disposal Request
DTSC – Department of Toxic Substances Control
EA – Environmental Assessment
EIS – Environmental Impact Statement
EIR – Environmental Impact Report

EMS – Environmental Management System
EO – Executive Order
EPA – US Environmental Protection Agency
EPP – Environmentally Preferable Purchasing
ERG – Emergency Response Guide
ES&H – Environment, Safety, and Health
ESA – Endangered Species Act
FIFRA – Federal Insecticide, Fungicide, and Rodenticide Act
FONSI – Finding of No Significant Impact
GPMPP – Groundwater Protection Management Program Plan
GSA – General Services Administration
HA – Hazards Analysis
HAP – Hazardous Air Pollutants
HBV – hepatitis B virus
HCP – Hearing Conservation Program
HEPA – High Efficiency Particulate Air
HIV – Human Immunodeficiency Virus
HWT – Hazardous Waste technician
HWTSF – Hazardous Waste Treatment and Storage Facility
IAQ – Indoor Air Quality
IARC – International Agency for Research on Cancer
IBC – Institutional Biosafety Committee
IBDC – Inhabited Building Distance Calculations
IDLH – Immediately Dangerous to Life and Health
IDT – Interdisciplinary Team
IH – Industrial Hygiene
IHSR – Industrial Hygiene Services Report
IS – Initial Study
ISMS – Integrated Safety Management System
LC – Lethal Concentration
LD – Lethal Dose
LDR – Land Disposal Restriction
LECS – Liquid Effluent Control System
LEL – Lower Explosives Limit
LFL – Lower Flammability Limit
LLNL – Lawrence Livermore National Laboratory
LOD – Limit of Detection
LOQ – Limit of Quantitation
LWIS – Low-Level Waste Information System
MAWP – Maximum Allowable Working Pressure
MBTA – Migratory Bird Treaty Act
MC&A – Material Control and Accountability
MCLs - Maximum Contaminant Levels
MLLW – Mixed Low-Level Waste
MSD – Musculoskeletal Disease
Mt – Metric Ton

NAAQS – National Ambient Air Quality Standards
ND – non detectable
NDDB – California Natural Diversity Database
NegDec – Negative declaration
NEPA – National Environmental Policy Act
NESHAP – National Emission Standard for hazardous Air Pollutants
NEW – Net Explosive Weight
NFA – No Further Action
NFPA – National Fire Protection Association
NIH – National Institutes of Health
NIOSH – National Institute of Occupational Safety and Health
NNSA – National Nuclear Security Administration
NPDES – National Pollutant Discharge Elimination System
NQA – Nuclear Quality Assurance
NSO – Nevada Site Office
NTP – National Toxicology Program
NTS – Nevada Test Site
ODC – Ozone Depleting Substances
OEA – Occupational Exposure Assessment
OP – Operating Procedure
OSHA – Occupational Safety and Health Administration
P2 – Pollution Prevention
PAPR – Power Air Purifying Respirator
PCB – Polychlorinated biphenyl
PEL – Permissible Exposure Limit
PK – Process Knowledge
PKE – Process Knowledge Evaluation
PM_{10} – respirable particulate matter
POTW – Publicly Owned Treatment Works
PPE – Personal Protective Equipment
PPOA – Pollution Prevention Opportunity Assessment
PQL – Practical Quantification Limit
PSDR – Package Storage and Disposal Request
PSIG – Pound per square inch, gauge
PTO – Permit to Operate
QA – Quality Assurance
QAP – Quality Assurance Plan
QAPP – Quality Assurance Program Plan
QC – Quality Control
QDC – Quantity Distance Calculation
RCA – Root Cause Analysis
RCRA – Resource Conservation and Recovery Act
RCT – Radiological Control Technician
RDL – Reportable Detection Limit
RG – Risk Group, e.g. RG1 is risk group 1, etc.
RMI – Repetitive Motion Injury

RMWSF – Radioactive and Mixed Waste Storage Facility
RP – Radiation Protection
RSI – Repetitive Strain Injury
RWAP – Radioactive Waste Acceptance Program
RWP – Radiological Work Permit
RWQCB – Regional Water Quality Control Board
RWR – Radioactive Waste representative
SAW – Sampling and Analysis Worksheet
SB-14 – Source reduction Evaluation Review and Plan; Hazardous Waste Management Performance Report; Summary Progress Report; State of California Senate Bill 14
SE – Safety Engineering
SIP – State Implementation Plan
SLB – Shallow Land Burial
SME – Subject Matter Expert
SOP – Standard Operating Procedure
SSO – Sandia Site Office
STLC – Soluble Threshold Leaching Procedure
SWEA – Final Site-Wide Environmental Assessment
SWP – Safe Work Permit
SWPP – Stormwater Pollution Prevention Plan
TAC – Toxic Air Contaminants
TCLP – Toxicity Characteristic Leaching Procedure
TI – Transport Index
TID – Tamper Indicating Device
TLD – Thermoluminescent Dosimeter
TLV – Threshold Limit Value
TPHD – Total Petroleum Hydrocarbons, diesel
TRI – Toxic Release Inventory
TRU – Transuranic
TSCA – Toxic Substances Control Act
TSD; TSDF – Treatment, Storage, and Disposal Facility
TTLC – Total Threshold Limitation Concentration
TTO – Total Toxic Organics
TWD – Technical Work Document
UEL – Upper Explosive Limit
UFL – Upper Flammability Limit
UN – United Nations
USFWS – US Fish and Wildlife Service
UST – Underground Storage Tank
VOC – Volatile Organic Compound
WAC – Waste Acceptance Criteria
WCO – Waste Certification Official
WCPP – Waste Certification Program Plan
WDDR – Waste Description and Disposal Request
WDT – Radioactive Waste and Mixed Waste Disposal Tag

WET – Waste Extraction Test
WIMS – Waste Information Management System
WMS – Waste Management System
WMS- California Waste Management System
WPE – Waste Program Engineer
WSE – Workstation Evaluation

Attachment C
APPROVED ES&H JOB POSITIONS/TITLES

Job Positions/Titles
Environmental Operations

General

- Environmental Operations Department Manager
- Environmental Operations Technician
- Assessment Team Leader
- ES&H Coordinator
- Field Chemist
- Quality Assurance Coordinator
- Purchaser
- Sampler
- Traffic Manager

Air Quality Program

- Air Quality Program Lead
- Air Quality Contractor Support

Environmental Monitoring Program

- Environmental Monitoring Program Lead
- Associate Engineer, Environmental Monitoring Program
- Senior Engineer, Environmental Monitoring Program

Environmental Planning Program

- Environmental Planning Program Lead
- Environmental Planning Program Technologist
- Wildlife Biologist
- Wildlife Biology Intern
- Wildlife Technologist

Hazardous Material Program

- Hazardous Materials Management Program Lead
- Hazardous Materials Technician

Waste Management Program

- Waste Management Program Lead
- Waste Management Program Engineer
- Waste Certification Official
- Waste Management Training Coordinator
- Waste Stream Evaluator
- Hazardous Waste Technician
- Nonconforming Reporting Coordinator
- Nuclear Materials Representative
- Radiation Protection Staff Program Lead
- Radiation Protection Staff Technologist

- Radioactive Waste Representative
- Radiological Control Technician

Pollution Prevention / Waste Minimization Program

- Pollution Prevention / Waste Minimization Program Lead
- Pollution Prevention / Waste Minimization Technician

Health and Safety

Industrial Hygiene

- Industrial Hygienist
- Industrial Hygiene Technologist
- Bio safety Officer
- Ergonomics Technologist

Safety Engineering

- Safety Engineer
- Safety Engineering Technologist
- Construction Safety Inspector
- Injury/Illness Reporting Clerk

Radiation Protection

- Health Physicist (Radiological Engineer)
- Radiological Control Technician
- Division Laser Safety Officer

ES&H Coordinator

- Division ES&H Coordinator
- Center ES&H Coordinator
- Self Assessment Program Lead
- Self Assessment Program Coordinator

Attachment D

ENVIRONMENTAL OPERATIONS ASSESSMENT FINDING FORM

Environmental Program	
Assessment Date	
Location	
Finding	
Standard and Code #	
Corrective Action	
Has corrective action been completed? If so, when?	Yes ___ Date: _____ No _____
Due Date	
Responsible SNL Manager/Org:	
Environmental Program	
Assessment Date	
Location	
Finding	
Standard and Code #	
Corrective Action	
Has corrective action been completed? If so, when?	Yes ___ Date: _____ No ___
Due Date	
Responsible SNL Manager/Org:	

Quality Assurance – Environmental Data and Documents 23 of 23
9/27/05

By my signature below, I affirm that I have read and understood this OP and all references called out
in procedural steps, and I agree to operate within the stated constraints.

Name	Signature	Org./Company	Date
Name	Signature	Org./Company	Date
Name	Signature	Org./Company	Date
Name	Signature	Org./Company	Date
Name	Signature	Org./Company	Date
Name	Signature	Org./Company	Date
Name	Signature	Org./Company	Date
Name	Signature	Org./Company	Date
Name	Signature	Org./Company	Date

References

10 CFR 1021, Department of Energy, National Environmental Policy Act Implementing Procedures, January 1997.

29 CFR 1910, Occupational Safety and Health Administration, Hazard Communication Standard, 1986.

40 CFR Part 61, National Emissions Standards for Hazardous Air Pollutants, Subpart H – National Emissions Standards for Emissions of Radionuclides Other Than Radon From Department of Energy Facilities, December 1989.

40 CFR Part 112, Environmental Protection Agency, Oil Pollution Prevention, July 1, 2005.

7 United States Code (USC) § 136, Federal Insecticide, Fungicide, and Rodenticide Act, 1972.

15 USC § 2601 et. seq., Toxic Substances Control Act of 1976.

16 USC § 703 et. seq. Migratory Bird Treaty Act of 1918.

16 USC § 1531 et. seq., Endangered Species Act of 1973.

33 USC § 1251, Clean Water Act of 1977.

42 USC § 4321 et. seq., National Environmental Policy Act of 1969.

42 USC 6901 et. seq., Resource Conservation and Recovery Act of 1976.

42 USC § 6961, Federal Facility Compliance Act of 1992.

42 USC § 7401, Clean Air Act Amendments of 1990.

42 USC §11001 et. seq., Superfund Amendments and Reauthorization Act of 1986, Emergency Planning and Community Right-to-Know Act.

42 USC § 13101 et. seq., Pollution Prevention Act of 1990.

Assembly Bill 2185, California Hazardous Materials Release Response Plans and Inventory Law, 1987.

CARB 2005a, Diesel Risk Reduction Plan, **http://www.arb.ca.gov/diesel/dieselrrp.htm**, August 15, 2005.

California Health and Safety Code, Division 20, Chapter 6.5, § 25100 et. seq., Hazardous Waste Control Law.

California Health and Safety Code, Division 104, Part 14, §§ 117600-118360, Medical Waste Management Act.

California Integrated Waste Management Board (CIWMB) 2005, Waste Tire Manifest System, **http://www.ciwmb.ca.gov/Tires/Manifest/,** September 27, 2005.

California Water Resources Control Board (CWRCB) 1990, Aboveground Petroleum Storage Act, January 1, 1990.

CWRCB 1997, State of California, NPDES General Permit for Storm Water Discharge Associated with Industrial Activities, April 1997.

California Water Code, Division 7, Water Quality § 13000 et. seq., Porter-Cologne Water Quality Control Act, January 1, 2005.

Congressional Record 2005, Energy Policy Act of 2005, July 27, 2005.

DOE 1994, DOE, Albuquerque Operations Office, Kirtland Area Office, Policy of the KAO for Making Contacts with External Regulatory Offices, September 15, 1994.

DOE 2001, DOE P 141.1, Department of Energy Management of Cultural Resources, May 2, 2001.

DOE 2003a, Final Site-wide Environmental Assessment of the Sandia National Laboratories/California, DOE/EA-1422, January 2003.

DOE 2003b, Site Wide Environmental Assessment for SNL/CA, Finding of No Significant Impact, March 20, 2003.

DOE 2003c, DOE Order 231.1A, Environment, Safety, and Health Reporting, August 19, 2003.

DOE 2003d, DOE Order 151.1B, Comprehensive Emergency Management System, October 29, 2003.

DOE 2004, DOE G 450.1-3, Environmental Guidelines for Development of Cultural Resource Management Plans – Update, September 22, 2004.

DOE 2005, DOE Order 450.1, change 1, Environmental Protection Program, January 24, 2005.

Executive Order (EO) 11990, Protection of Wetlands, Federal Register, Vol. 42, pp. 26961, May 25, 1977.

ISO 2004, ISO 14001, second edition, Environmental management systems – Requirements with guidance for use, November 15, 2004.

SNL 1998, CPR 400.1.2.2, Process for Flow-Down and Tailoring of Requirements and Standards that Support Sandia's Integrated Safety Management System, June 30, 1998.

SNL 2003a, CPSR 200.1, Communications, May 1, 2003.

SNL 2003b, CPR 001.3.2, Corporate Quality Assurance Program, **http://www-irn.sandia.gov/policy/leadership/quality.html**, August 1, 2003.

SNL 2004a, CPR 001.1, Corporate Business Rules System Standard, April 20, 2004.

SNL 2004b, CPR 400.1.2, Integrated Safety Management System Description, August 10, 2004.

SNL 2004c, CPSR 400.2, Information Management, September 29, 2004.

SNL 2004d, CPR 300.2.1, Performance Management, October 2004.

SNL 2005a, CPS 001, Corporate Policy Statement, June 10, 2005.

SNL 2005b, CPSR 300.7, Education, Development and Training, June 14, 2005.

SNL 2005c, CPSR 400.1, Environment, Safety & Health, July 16, 2005.

SNL 2005d, CPR 400.1.1, ES&H Manual & Supplements (MN471001), August 12, 2005.

SNL 2005e, CPR 300.4.3, Employee Conduct and Corrective Discipline, August 12, 2005.

SNL 2005f, CPR 300.3.2, Staffing: Sourcing & Selection Manual, September 19, 2005.

SNL/CA 2003, Sandia National Laboratories, California Quality Program, **http://www.ran.sandia.gov/ctr/ctr2200/dpt2266/quality/plan/html**, May 23. 2003.

SNL/CA 2005a, OP471347, Administrative Procedure for Managing Sandia/CA ES&H Recorded Information, April 13, 2005.

SNL/CA 2005b, Quality Assurance of Data, Documents and Select Activities of the Environmental, Safety and Health Departments, 8516 and 8517, April 28, 2005.

Senate Bill 14, California Hazardous Waste Source Reduction and Management Review Act of 1989, as amended July 21, 1997.

Senate Bill 20, as amended by Senate Bill 50 (SB20/SB50), California Electronic Waste Recycling Act of 2003.